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**THE  
NEWER REMEDIES.  
COBLENTZ.**

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# THE NEWER REMEDIES.

A REFERENCE MANUAL

FOR

*PHYSICIANS, PHARMACISTS & STUDENTS,*

BY

**VIRGIL COBLENTZ, Phil. D., F. C. S., etc.,**

*Professor of Pharmacy and Pharmaceutical Chemistry in the New York College  
of Pharmacy; Author of Handbook of Pharmacy; Member of the Chemical  
Societies of Berlin and London; Fellow of the Society of  
Chemical Industry, etc., etc.*

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NEW YORK:  
D. O. HAYNES & CO.  
1895.

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## PREFACE.

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The constantly increasing number and complexity of new remedies, with the scattered condition of the literature on the subject, render it an almost impossible task for anyone except the specialist to become at all acquainted with them. The physician who keeps in progress with the advance of the times is constantly on the alert for new and improved remedies with which to combat disease. It is, therefore, the duty of the apothecary to be conversant with these, not only by title, but as to identity, sources, properties and doses. It has been the endeavor of the author to present as complete a list of these newer remedies as possible, in a concise and alphabetical form. The various articles are arranged under their commercial names, including, however, in this arrangement all the more important synonyms.

In all instances, where possible or practicable, the sources and methods of preparation have been given, followed by such tests of identity, as melting and boiling points, with solubilities, incompatibles, medicinal properties and doses as far as known. Details concerning physiological action and clinical data could not satisfactorily be included in a work of this size, hence the physician, when full accounts are desirable, must necessarily be referred to current medical literature or more extensive works on modern materia medica. It should be observed that these newer remedies have appeared and continue to appear in rapid succession, and in many instances the most important data are wanting, some going no further than mentioning title and nature of the substance, others stating medicinal uses only, indicating that they are still in the experimental stage. Hence in view of this, it will be necessary to issue revised editions from time to time as the fund of information increases.

The doses quoted are the minimum and maximum for an average adult, being lessened accordingly for children and the feeble, and for hypodermic use. The sizes of the doses are expressed in the metric system, including, however, their nearest equivalents (in round numbers) in apothecaries' weight.

Many of these remedies now offered are of a proprietary nature, hence all that is known of their composition is what is given upon the authority of various published analyses.

The author is indebted to Geo. C. Diekman, M. D., for his careful perusal of that portion relating to the medicinal properties and doses of the various remedies.

NEW YORK CITY, APRIL, 1895.

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# THE NEWER REMEDIES.

## ABRASTOL. (ASAPROL) (C<sub>10</sub> H<sub>6</sub> OH. SO<sub>3</sub>)<sub>2</sub>Ca.

The calcium salt of beta-naphthol-sulphonic acid. It is a soluble white powder, and because of its antiseptic properties, it is employed as a preservative agent for foods. It is also employed as an intestinal antiseptic in doses of 1 to 2 Gm. (15-30 grains).

## ABRIN. (JEQUIRITIN).

Abrin is the most potent principle contained in the Jequiry seed (*Abrus precatorius*). It partakes of the nature of an albuminoid and is very poisonous. Forms a brownish yellow soluble powder; employed to limited extent for producing artificial conjunctivitis.

## ACETAL. CH<sub>3</sub>-CH(OC<sub>2</sub>H<sub>5</sub>)<sub>2</sub>.

*Synonyms:* Ethyliden-di-ethyl-ether; Di-ethyl acetal.

This body is obtained by the reaction between acetic-aldehyde and alcohol, whereby water separates. It is a colorless liquid, boiling at 104°-106° C. (219°-222° F). Soluble in 18 parts of water (25° C.) and very soluble in alcohol. It is employed as sedative and hypnotic. Dose is from 5 to 10 Gm. (77-154 grains).

Usually administered in form of an emulsion.

## ACETAMINOL. C<sub>6</sub>H<sub>3</sub>(OCH<sub>3</sub>)(C<sub>2</sub>H<sub>5</sub>)O-CO. C<sub>6</sub>H<sub>4</sub>NHCOCH<sub>3</sub>.

*Synonym:* p-Acetamidobenzoyl-Eugenol.

By interaction between p-nitrobenzoylchlorid and eugenol-sodium in molecular proportions, p-nitrobenzoyleugenol is formed, this upon reduction yields the corresponding p-Amidobenzoyl-eugenol, which is acetylated by means of acetic anhydride. This compound appears in the form of white scales or a crystalline powder, of melting point 160° C. It is almost insoluble in water, quite soluble in alcohol.

It is employed in treatment of phthisis.

## ACETANILID. C<sub>6</sub>H<sub>5</sub>NH.COCH<sub>3</sub>.

*Synonyms:* Antifebrine; Phenylacetamide.

Obtained by prolonged interaction between pure aniline and glacial acetic acid at boiling temperature. Twenty grammes of aniline are boiled with 30 grammes of glacial acetic acid under an inverted condenser for from six to ten hours, till a sample of the mixture when removed solidifies on cooling, to a crystalline mass. The fused mass is poured into cold water, and the crystals which separate are filtered off and recrystallized from hot water or alcohol. When pure, acetanilid forms lustrous rhombic tables without odor or color, melting at 113° C. (235.4° F.), soluble at 15° C. (59° F.), in 194 parts of water, and in 5 parts of alcohol; in 18 parts of boiling water, and in 0.4 parts of boiling alcohol.

Its properties are those of an antipyretic. The average dose is from 0.2-0.5 Gm. (3 to 8 grains). The various derivatives of acetanilid employed in medicine are Asepsin, Iodantifebrin, Antinervin, Benzanilid, Exalgin.

Among the various remedies which are supposed to contain acetanilid as one of their constituents are Antikamnia, Phenolid, Exodyne, Antikol, Pyretin, Phenatol, Kaputin, etc.

## ACETON.

A proprietary grip and headache remedy. Not to be confounded with acetone.

## ACETONE. CH<sub>3</sub>-CO-CH<sub>3</sub>.

*Synonym:* Di-methyl-ketone.

This is prepared by the dry distillation of calcium acetate; it boils at 56° C. (132.8° F.), has a peculiar ethereal odor and sharp burning taste. Miscible with water, alcohol and ether.

It is employed as a nervine in doses of 5 to 15 minims, in water or infusion of valerian.

## ACETONORESORCIN.

A combination of two molecules of resorcin and one of acetone. Used as an antiseptic.

## ACETOPHENONE. See Hypnone.

ACET-ORTHO-TOLUID.  $C_6H_4(CH_3)NHCOCH_3$ .

*Synonym:* Ortho-Tolyl-acetamid.

This is an isomeric of exalgine, obtained by prolonged interaction between ortho-toluidin and glacial acetic acid at boiling temperature. This occurs in colorless needles; melting point,  $107^{\circ}C.$  ( $221.6^{\circ}F.$ ) Soluble in hot water, alcohol and ether, almost insoluble in cold water.

It is employed as an antipyretic, its action is more rapid than that of acetanilid, yet being less toxic. The dose, although there is no authority upon the subject, would be from 0.1—0.3 Gm. (2-5 grains).

ACET-PARA-AMIDO-SALOL. See Salophen.

ACET-PARA-TOLUID.  $C_6H_4(CH_3)NHCOCH_3$ .

*Synonym:* Para-Tolyl-acetamid.

This is obtained by prolonged interaction between para-toluidin and glacial acetic acid, at boiling temperature. It occurs in colorless crystals of melting-point  $149^{\circ}C.$  ( $300.2^{\circ}F.$ ). It is almost insoluble in water, and readily soluble in alcohol.

It is employed as an antipyretic in doses of from 1-2 Gm. (15-30 grains).

ACETYL-PARA-AMIDO-PHENYL SALICYLATE. See Salophen.

ACETYL-AMIDO-ANTIPYRINE. See under Antipyrine.

ACETYL-PARA-ETHOXY-PHENYL-URETHANE. See Thermodin.

ACETYL-PHENYL-HYDRAZINE. See Hydracetin.

ACID ANISIC. See Anisic Acid.

ALPHA-OXY-NAPHTOIC. See Alpha-Oxy-Naphtoic Acid.

ASEPTIC. See Aseptic Acid.

BETA-PHENYL-PROPIONIC. See Beta-Phenyl Propionic Acid.

BETA-PHENYLO-SALICYLIC ACID. See Beta-Phenyl-Salicylic Acid.

CAMPHORIC. See Camphoric Acid.

CINNAMYLIC. See Cinnamic Acid.

CRESYLIC. See Cresol.

DI-CHLOR-ACETIC. See Di-Chlor-Acetic Acid.

DI-iodo-SALICYLIC. See Di-Iodo-Salicylic Acid.

FILICIC. See Filicic Acid.

GYMNEMIC. See Gymnemic Acid.

HYDRO-CYNNAMIC. See Beta-Phenyl Propionic Acid.

ORTHO-AMIDO-SALICYLIC. See Ortho-Amido-Salicylic Acid.

PHENYLO SALICYLIC. See Phenylo-Salicylic Acid.

SOZALIC. See Aseptol.

SOZOIODIC. See Sozoiodic Acid.

SOZOLIC. See Aseptol.

SULPHOTUMENOLIC. See Tumenol.

TETRA-THIO-DICHLOR-SALICYLIC. See Tetra-Thio-Dichlor-Salicylic Acid.

THIOLINIC. See Thiolinic Acid.

TRI-CHLOR-ACETIC. See Tri-Chlor-Acetic Acid.

ADEPS LANÆ.

*Synonyms:* Lanolin; Adeps Lanæ Hydrosus, U. S. P.

"The purified fat of the wool of sheep .....mixed with not more than 30 per cent of water." U. S. P.

The wool of sheep contains a large per cent. of fats (about 45%) which it is necessary to remove before it can be used in manufacturing. These fats consist of a mixture of fatty esters of cholesterin and isocholesterin. The crude wool fat, which is usually obtained by washing the wool with benzine, acetone or some similar solvent and evaporating, is emulsified with a weak alkaline solution, then separating the creamy mixture in centrifugal machines; the upper layer of fluid contains the cholesterin fats, while the lower layer consists of a soap solution of the impure fatty acids. The upper fluid is drawn off and the cholesterin fats set free by the addition



of a solution of calcium chloride; the impure lanolin thus obtained is purified by repeated melting and washing, finally extracting with acetone.

Anhydrous wool-fat is of a pale yellow color, somewhat translucent, melting at 36° C. (96.8° F.), readily soluble in benzine, ether, chloroform, acetone, but only partly soluble in alcohol. When mixed with 30 per cent. of water it constitutes the hydrous wool-fat of the Pharmacopœia.

Hydrous wool-fat occurs as a nearly white ointment-like mass the surface of which, on standing, becomes of an orange color, due to loss of water. Its melting point is about 40° C. (104° F.); it is miscible with twice its weight of water without losing its ointment-like character. Wool-fat is employed as a base for the preparation of ointments, pomades, creams, etc.

#### ADONIN.

A glucosidal principle obtained from the herb *Adonis vernalis*. It is a bitter, yellowish-white, hygroscopic powder, soluble in water and alcohol, insoluble in ether. Employed as a cardiac stimulant, being feebly diuretic; dose 0.01—0.06 Gr. (1-6—1 grain).

#### ÆSCULIN. $C_{15}H_{16}O_9 + 1\frac{1}{2}$ Aq.

A glucoside obtained from the bark of the horse chestnut. (*Æsculus hippocastanum*.) After precipitating the tannin and coloring matter from the hot aqueous extract by means of alum and ammonia, the filtrate is evaporated to dryness and the residue extracted with alcohol; purified by recrystallization. Æsculin forms inodorous fine needle-like crystals, of bitter taste, almost insoluble in cold and quite soluble in hot water, its aqueous solution having a strong blue fluorescence. Recommended as an antiperiodic.

#### ÆTHYL, ÆTHYLEN, ÆTHYLIDEN, ETC., COMPOUNDS.—(See under Ethyl, Ethylene, Ethylidene, Etc.)

#### AGARIC ACID. See Agaricin.

#### AGARICIN. $C_{14}H_{27}OH (CO_2H) H_2O$ .

*Synonym:* Agaric Acid.

The active principle of the fungus *Agaricus albus* or *Polyporus officinalis*, obtained by extraction with alcohol. It forms a white crystalline powder, melting at 140° C. (284° F.). Almost insoluble in cold water, soluble in 130 p. of alcohol.

Agaricin is employed in the treatment of night sweats of consumptives; also in relieving the sudorific effect of the synthetic antipyretics. Dose, 0.01—0.03 Gm. (1-6— $\frac{1}{2}$  grain.)

#### AGATHIN. $C_6H_5-N (CH_3)-N: CH-C_6H_4 (OH)$ .

*Synonym:* Salicyl- $\alpha$ -methyl-phenyl hydrazone.

Agathin is obtained by reaction between salicylic aldehyde and the base methyl-phenyl-hydrazone. This forms colorless crystalline flakes, inodorous and tasteless, insoluble in water, but soluble in alcohol and ether. Its melting point is 70° C. (158° F.)

Agathin is employed as an anti-neuralgic and anti-rheumatic in doses of 0.1—0.5 Gm. (2—8 grains).

#### AGNINE.

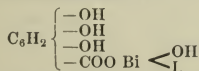
This is probably prepared by distilling wool-fat in a current of superheated steam.

It contains a large percentage of free fatty acids (33%).

#### AGOPYRIN. See under Antipyrine.

#### AIROL.

An oxyiodide of bismuth subgallate, patented by the firm of Hoffmann, Traub & Co., of Basel. This compound possesses the absorbent properties of subgallate of bismuth as well as the antiseptic properties of its iodine combination. Airol forms a greenish gray, fine voluminous, inodorous and tasteless powder. Light produces no effect, while moist air causes the powder to turn a red color, with loss of iodine. In contact with water, particularly when heated, the powder undergoes slow decomposition, changing to a red color, with loss of iodine. Dilute alkalies and acids dissolve this compound readily. The formula ascribed is:



That is, it is a basic bismuth gallate in which a hydroxyl group is replaced by iodine. Airol is applied as a dusting powder over wounds, sores, etc.

#### ALANT-CAMPHOR. See under Alantol.

ALANTOL.  $C_{10}H_{16}O$ .

Elecampane root (*Inula Helenium*) contains, aside from inulin, resinous, waxy and extractive matter; alantol, a liquid stearoptene; alantic anhydride, a crystalline body, and a solid stearoptene called helenin.

*Alantol* is an aromatic liquid, of a peppermint-like odor, boiling at  $200^{\circ} C.$  ( $392^{\circ} F.$ ). It is employed as an antiseptic in treatment of tuberculous diseases.

*Helenin* or *Alant-Camphor*.  $C_8H_{10}O$ .

This occurs in colorless, inodorous crystalline needles, insoluble in water, but soluble in alcohol and ether, melting at  $68^{\circ}-70^{\circ} C.$  ( $155^{\circ}-158^{\circ} F.$ ). It is employed as an antiseptic in treatment of malaria, tuberculosis, diarrhoea, etc., in frequent doses of 0.01 Gm. ( $\frac{1}{6}$  grain.)

## ALBOLENE.

This is a refined product of petroleum, free from any definite chemical or physiological action; it cannot become rancid, and is introduced as a colorless, odorless base for ointments, cerates, salves, pomades, etc., especially in hot climates.

*Albolen eliquid* is a colorless, odorless, tasteless fluid, with a specific gravity of 0.865 at  $60^{\circ} F.$ , obtained from petroleum and afterwards specially treated. It does not saponify nor become rancid, neither is it decomposed by acids or alkalies. It can be vaporized in a brine bath at zero, indicating the absence of solid paraffin, and is free from petroleum ethers. Its lightness makes it very diffusible as vapor or as a solvent for drugs used in oil for spraying the nasopharyngeal passages.

ALIZARIN-YELLOW-C. See Gallacetophenon.

ALLYL-MUSTARD OIL. See Oleum Sinapis Volatile.

ALLYL-SULPHO-CARBAMIDE. See Thiosinamine.

ALLYL-SULPHO-UREA. See Thiosinamine.

ALLYL-THIO-UREA. See Thiosinamine.

ALPHOL. See Betol.

ALUMINUM-AMMONIUM-SALICYLATE. See Salumin (soluble).

ALUMINUM-BASIC TANNATE. See Tannal (insoluble).

ALUMINUM-BETA-NAPHTHOL-DISULPHONATE. See Alummol.

ALUMINUM-BOROFORMATE.

It is thus made: Mix 2 parts formic acid, 1 part boric acid and 6 or 7 parts of water, and in the mixture dissolve fresh precipitated alumina; filter, allow to crystallize; or it may be employed in a solution of sp. gr. 1.064 (10%) or sp. gr. 1.110 (20%), reduced by careful evaporation. It is employed as a mild antiseptic and astringent.

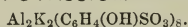
ALUMINUM-BORO-TANNICO-TARTRATE. See Cutal.

ALUMINUM-BORO-TARTRATE. See Boral.

ALUMINUM-GALLATE (Basic). See Gallal.

ALUMINUM-PARA-PHENOL-SULPHONATE. See Sozal.

ALUMINUM-POTASSIUM-PARA-PHENOL-SULPHONATE.



This compound is obtained by saturating para-phenol sulphonic acid with a solution of potassium-aluminate. It forms colorless crystals, soluble in water. Its properties are those of an antiseptic and astringent; it is employed chiefly as a wash for indolent ulcers, etc.

ALUMINUM SALICYLATE. See Salumin (insoluble.)

ALUMINUM TANNATE (Basic.) See Tannal.

ALUMINUM TANNIC-TARTRATE. See Tannal (soluble.)

ALUMNOL.  $(C_{10}H_8(OH)SO_3)_3Al$ .

*Synonym*; Beta-Naphthol-Disulphonate of Aluminum.

Alumnol is obtained by reaction between the barium compound of beta-naphthol-disulphonic acid and aluminum sulphate. It forms a colorless powder, readily soluble in water and glycerine, but only slightly soluble in alcohol. Aqueous solutions are incompatible with alkaline solutions, the hydrate of alumina being precipitated. Likewise it precipitates albuminoid and gelatinous bodies from solution, the precipitate being soluble in excess of albumen or gelatin.

Alumol is employed as an antiseptic and astringent. As a wash for purulent surfaces, it is employed in from 1 to 5% solution; in 10 to 20% solutions it serves as a cautery. Mixed with powdered talc or starch (10 to 20%), it forms an astringent dusting powder.

#### ALSTONIN.

An alkaloid obtained from the bark of the *Alstonia constricta* (Apocynaceæ.)

Alstonin forms white, crystalline needles, insoluble in water; soluble in alcohol, ether and chloroform. To hot water it imparts an intensely bitter taste.

Its properties are those of an antiperiodic and antiseptic, being employed in the treatment of typhus fever. Nothing is known concerning its dose.

AMIDO-ACET-PHENETIDIN. See Phenocoll.

AMIDO-ANTIPYRINE. See under Antipyrine.

#### AMIDO-GUAIACOL.

Aceto-o-anisidin, on treatment with nitric acid, yields nitro-acet-o-anisidin, which, on being boiled with alkalis, undergoes saponification, yielding an alkali salt of nitro-guaiacol. By the action of zinc and hydrochloric acid or other reducing agents, this nitro-guaiacol is converted into amido-guaiacol. This base melts at 184° C. (363.2° F.); its hydrochloride at 242° C. (467.6° F.) The salts of amido-guaiacol are employed in the preparation of colors and as medicinal agents.

AMIDO-SUCCINAMIDE. See Asparagin.

#### AMMONIUM EMBELICUM. $C_9H_{13}O_2.NH_4$ .

This is the ammonium salt of embelic acid, the latter being prepared from the *Embelia Ribes*, Burm. (*Myrsinaceæ*.)

It is a brick-red powder, readily soluble in diluted alcohol.

It is employed as a tæniifuge, in doses from 0.18 Gm. (2.8 grains) for children; to 0.4 Gm. (6. grains) for adults.

AMMONIUM-ICHTHYOL-SULPHONATE. See Ichthyol.

#### AMMONIUM SALICYLATE. $C_6H_4(OH)COONH_4$ .

This compound is obtained by neutralizing salicylic acid with ammonium carbonate, evaporating and crystallizing. It forms a white crystalline powder, of sweet taste and very soluble in water.

Ammonium Salicylate is recommended as an expectorant, the dose being the same as the other salicylates.

AMMONIUM-SULPHO-ICHTHYOLICUM. See Ichthyol.

#### AMMONOL.

A proprietary remedy recommended as an antipyretic and analgesic. It is also claimed to possess antiseptic properties. Dose 0.3 to 1.3 Gm. (5 to 20 grains.)

AMYL-ALCOHOL, TERTIARY. See Amylene Hydrate.

AMYLENE. See Pental.

#### AMYLENE HYDRATE. $(CH_3)_2.C_2H_5.C.OH$ .

*Synonyms:* Tertiary Amyl Alcohol; Amylenum Hydratum; Dimethyl-Ethyl-Carbinol.

This is one of the eight possible alcohols of the general formula  $C_5H_{11}OH$ ; it is prepared by the action of sulphuric acid upon amylene ( $C_5H_{10}$ ), the latter being obtained by the action of dehydrating agents on isobutylcarbinol.

Amylene Hydrate is a colorless, limpid fluid of peculiar penetrating odor, similar to that of peppermint. Its specific gravity is 0.815, and boiling point is between 99°-103° C. (210°-217° F.) It dissolves in eight parts of water, and is miscible with alcohol, ether, glycerine and the fatty oils.

Tertiary Amyl Alcohol is employed as a hypnotic in doses of 2 to 4 Gm. (30 to 60 grains.)

#### AMYLOCARBOL.

A mixture of nine parts of phenol; green soap, 150 parts; amylic alcohol, 160 parts, and water sufficient to make 1,000 parts.

#### AMYL-VALERIANATE. $C_5H_9O_2.C_5H_{11}$ .

*Synonyms:* Apple Oil; Iso-Amyl-Valerianate.

This well known ester is a colorless ethereal liquid, which boils at 194° C. It possesses a solvent action on cholesterol; also exerts a specific stimulating and sedative action on the liver in gallstone colic. Usually administered in gelatin capsules containing 0.15 Gm. (2.3 grains.)

**ANADOL.**

A proprietary antipyretic.

**ANAGRINE HYDROBROMATE.**  $C_{14}H_{18}N_2O_3HBr_2$ .

This is a salt of the alkaloid obtained from the seed of *Anagyris foetida*. It occurs as small, white shining scales, which are soluble in water and alcohol, and melt between  $25^\circ$  and  $266^\circ$  C. Physiological investigations by Hardy and others have proved anagrine to be toxic; therapeutic data are wanting.

**ANALGENE.**  $C_9H_9-OC_2H_5-NH.COC_6H_5-N$ .

*Synonyms*: Benzanalgene; Ortho-Ethoxy Ana-Mono-Benzoyl-Amido-Chinolin; Ethoxy-Ana-Benzoyl-Amido-Chinoline.

This body is obtained by introducing an ethyl and amido group into ortho-oxychinolin; into the resulting ortho-oxethyl-amido-chinolin the benzoyl group is introduced by the action of benzoyl chlorid.

Analgene forms white, tasteless crystals, melting at  $208^\circ$  C. ( $406.4^\circ$  F.), insoluble in water, readily soluble in alcohol.

This compound is employed as an anti-neuralgic in doses of 0.5 to 1.0 Gm. (8 to 15 grains.)

**ANALGESIN.** See Antipyrin.**ANALGIA.**

Proprietary analgesic and antipyretic.

**ANASPALINE.**

This consists of a mixture of wool-fat, with about 25% of petrolatum.

**ANDUNEA.**

A proprietary analgesic.

**ANEMONIN.**  $C_{10}H_8O_4$ .

This is the active principle of the herbs *Anemone pulsatilla*, *A. pratensis* and *Ranunculus acer*.

It occurs in colorless, crystalline needles, which melt at  $152^\circ$  C. ( $315.6^\circ$  F.), and readily dissolve in warm alcohol and the oils while being almost insoluble in water. Anemonin is employed in treatment of whooping cough, bronchitis and asthma, in doses of 0.95 to 1.01 Gm. (0.7 to 1.5 grains.)

**ANETHOL.**  $C_9H_9-C_6H_4-O-CH_3$ .

*Synonyms*: Para-Allyl-Phenyl-Methyl-Ether; Anise Camphor.

Anethol constitutes the main constituent of oil of anise. It occurs in colorless crystals, melting at  $22^\circ$  C. ( $71.6^\circ$  F.) and boiling at  $234^\circ$  C. ( $453^\circ$  F.), soluble in alcohol and the oils, but insoluble in water.

Anethol is employed as an antiseptic, also as a flavoring constituent in liquors, etc.

**ANGIONEUROSIN.** See Nitroglycerin.**ANHYDRO-GLUCO-CHLORAL.** See Chloralose.**ANISE CAMPHOR.** See Anethol.**ANISIC ACID.**  $C_6H_4(OCH_3)COOH$ .

*Synonym*: Paramethoxy-Benzoic Acid.

This is an isomer of methyl salicylic acid, obtained by oxidation of anethol, a constituent of oils of anise and fennel.

It forms colorless prismatic crystals, which melt at  $190^\circ$  C. ( $356^\circ$  F.) It is insoluble in cold water, but very soluble in alcohol.

Employed externally it possesses antiseptic properties. Internally it exerts antipyretic and anti-rheumatic properties. It is usually administered as sodium salt.

**SODIUM ANISATE.** This is obtained by neutralizing anisic acid with sodium carbonate or bicarbonate. The commercial salt constitutes a hygroscopic, crystalline powder of less disagreeable taste than the acid.

The dose is 1 Gm. (15 grains.)

**PHENYLESTER OF ANISIC ACID.**  $C_6H_4(OCH_3)CO_2C_6H_5$ . This compound bears the same relationship to anisic acid as salol does to salicylic acid. It is obtained by the action of phosphorus pentachlorid on a mixture of anisic acid and phenol.

It occurs as colorless crystals, which melt at  $75^\circ$  C. ( $167^\circ$  F.), insoluble in water, but very soluble in alcohol and ether.

It is employed in the treatment of neuralgia and rheumatism, in doses from 0.5 to 1.0 Gm. (8 to 15 grains.)

**ANNIDALIN.** See Aristol.

**ANODYNIN** (Anodin.) See Antipyrin.

**ANTALGIA.**

A proprietary antipyretic and analgesic.

**ANTHRAROBIN.**  $C_6H_4 < \begin{array}{c} C(OH) \\ | \\ CH \end{array} > C_6H_2(OH)_2$ .

*Synonyms:* Dioxyanthrol; Desoxy-Alizarin; Leuko-Alizarin.

A phenol derivative related to chrysophanic acid, obtained by the reduction of alizarin.

Anthrarobin is a yellowish white powder, insoluble in water, but very soluble in aqueous solutions of the alkalis and alkaline earths. These alkaline solutions rapidly turn green, then blue, through absorption of oxygen from the air, alizarin being reformed.

It is employed as a substitute for chrysarobin in skin diseases, usually as a 10 to 20% ointment.

**ANTIBACILLIN.**

A proprietary disinfectant.

**ANTIDIPHtherITIKON.**

Bokai's mixture of Oil of Birch (5), Oil of Beech (3), Alcohol (90), Potassium Carbonate (1), and Potassium Sulphide (5). Used as a diphtheria remedy.

**ANTIDIPHtherIN.**

A sterilized solution containing cultures of diphtheria bacillus, in addition to 0.2% of ortho-cresol and some glycerin. It occurs in commerce in two concentrations, one double and the other four times the strength of the original culture fluid. The stronger solution is employed for painting the affected parts, while the weaker is used for hypodermic injection ( $\frac{1}{2}$  cc.)

**ANTIDOLOR.**

A proprietary anodyne.

**ANTIFEBRIN.** See Acetanilid.

**ANTIFETOR.**

A proprietary deodorizing powder.

**ANTIKAMNIA.**

A secret remedy employed as an antipyretic and analgesic. Various analyses have shown the presence of acetanilide, sodium bicarbonate and caffeine. Its dose is given as 0.3 to 0.6 Gm. (5 to 10 grains.)

**ANTIKOL.**

A powder said to be a mixture of acetanilide (75p.), sodium bicarbonate (17.5p.) and tartaric acid (7.5p.) (Goldmann).

**ANTINERVIN.**

A powder consisting of acetanilide (50 p.), ammonium bromide (25 p.), and salicylic acid (25 p.) (Squibb).

It is employed as an antinervine and antipyretic, in doses of 0.5 Gm. (8 grains).

**ANTINONNIN.** See under Cresol.

**ANTIPYRALGOS.**

A proprietary antipyretic and anodyne.

**ANTIPYRINE.**  $C_{11}H_{12}N_2O$ .

*Synonyms:* Analgesine; Anodynin; Parodyn; Oxy-Dimethyl-Chinizin; Phenazon; Phenyl-Dimethyl Pyrazolon; Phenylon; Sedatin; Di-Methyl-Phenyl-Pyrazolon; Methozine; Pyrazine.

This is a synthetical base, obtained by the action of aceto-acetic ester on phenylhydrazine, the resulting phenyl-methyl-pyrazolon being methylated.

Antipyrine occurs in colorless and odorless crystals, which melt between 112°-113° C. (233 6°-235 4° F.), and are readily soluble in water and alcohol.

Its solutions are turned a green color on addition of nitrous acid (Sp. Etheris Nitrosi), and a deep red color on addition of ferric chloride (Tr. Ferri Chloridi). Because of its strongly basic properties, antipyrine presents a number of incompatibles.

The following is a list of the more important of these :

Acidum Hydrocyanicum Dil.

Acidum Tannicum. All galenical preparations containing tannin form insoluble precipitates.

Acidum Carbolicum ; either one precipitates the other from solution.

Chloral Hydrate and Butyl Chloral.

Ferri Sulphas.

Ferric Salts in solution (red color). Frequently dispensed.

Liquor Arsenii et Hydrargyri Iodidi ; insoluble precipitate.

Mercurous and Mercuric Chloride.

Nitrites in solution (green color). Frequently dispensed.

Sodii Bicarbonas.

Tinctura Iodi ; insoluble precipitate.

When triturated with Chloral, Phenyl-Urethane, Beta-Naphthol or Sodium Salicylate, it forms a pasty or liquid mass.

Antipyrine increases the solubility of Caffeine and Quinine Salts in water

Internally it is employed as an antipyretic, antirheumatic and antineuralgic in doses of 1 to 2 Gm. (15 to 30 grains) for adults, and 0.2 to 0.5 Gm. (3 to 8 grains) for children. Externally, antipyrine is used as an antiseptic and hæmostatic.

#### DERIVATIVES AND ALLIED COMPOUNDS.

Antipyrine, being a basic body, readily unites with acids to form salts, a number of which have been introduced into medicine.

*SALIPYRINE*, or *ANTIPYRINE SALICYLATE* ( $C_{11}H_{12}N_2O_7C_7H_6O_3$ ), is obtained by interaction between antipyrine and salicylic acid ; 57.7 parts of the former and 42.3 parts of the latter being heated together on a water bath, the resulting oily-like fluid which solidifies on cooling is crystallized from alcohol. It occurs as a crystalline, inodorous powder, melting at  $92^\circ C.$  ( $197.6^\circ F.$ ), soluble in 200 parts of cold and 25 parts of boiling water, very soluble in alcohol and ether. Salipyrine exerts the combined effects of antipyrine and salicylic acid, being employed in the treatment of acute and chronic rheumatism, rheumatic sciatica and influenza, in doses of 1 to 2 Gm. (15 to 30 grains).

*AGOPYRIN*. A secret remedy which appears in the form of tablets containing ammonium chloride 1-3 grain, cinchonine sulphate 1-3 grain and salicin 4 grains.

*ACETYL AMIDOANTIPYRINE* is the acetyl derivative of amidoantipyrine, which in turn is obtained by the reduction of iso-nitroso-antipyrine. This latter body results from the action of nitrous acid on antipyrine. It forms a crystalline powder which melts at  $197^\circ C.$  ( $386.6^\circ F.$ ), its properties being similar to those of antipyrine.

*AMIDOANTIPYRINE* occurs in yellow needles which melt at  $149^\circ C.$  ( $288^\circ F.$ ) It is obtained by the reduction of isonitroso-antipyrine, which results from the action of nitrous acid on antipyrine.

*BUTYL-HYPNAL* is a combination of butyl chloral and antipyrine, similar to that of the latter with chloral hydrate (see Hypnal.) It forms colorless needles, melting at  $70^\circ C.$  ( $158^\circ F.$ ), soluble in 30 parts of water and readily soluble in alcohol.

*DICHLORALANTIPYRINE* ( $C_{11}H_{12}N_2O + 2CCl_3CH(OH)_2$ ) is obtained by triturating 94 parts of antipyrine with 165.5 parts of chloral hydrate until a mass is obtained, which is crystallized from hot water. Its medicinal properties are like those of monochloralantipyrine.

*IODOPYRINE*, or *IDOANTIPYRINE* ( $C_{11}H_{11}IN_2O$ ), forms colorless needles, which melt at  $160^\circ C.$  ( $320^\circ F.$ ), being only slightly soluble in water. Iodopyrine has the action of an iodide in addition to that of antipyrine ; its dose being 0.5 to 1.5 Gm. (8 to 23 grains).

*MIGRANIN*. This is an antipyrine preparation, the composition of which is, according to various analyses, antipyrine 89.4%, caffeine 8.2%, citric acid 0.56% and moisture 1.84%. It is recommended as a specific in the treatment of migraine, and is also employed in relieving the headache of influenza. The dose is given as 1 Gm. (15 grains),

*PARA-METHOXY-PHENYL-DMETHYL-PYRAZOLON*, or *PARA-METHOXY-ANTIPYRINE*. Obtained by methylating the product of the reaction between p-methoxy-phenyl-hydra-zine and acetoacetic ester. It forms crystals which melt at  $82^\circ C.$  ( $179.6^\circ F.$ ), being readily soluble in water and alcohol. The ethoxy compound melts at  $91^\circ C.$  ( $195.8^\circ F.$ )

Both of these compounds possess antipyretic and antineuralgic properties, being weaker, however, than antipyrine.

*MONOCHLORALANTIPYRINE*, or *HYPNAL* ( $C_{11}H_{12}N_2O. CCl_3CH(OH)_2$ ), is obtained by triturating together 188 parts of antipyrine and 165.5 parts of chloral hydrate until liquefaction takes place ; the oily-like fluid is then dissolved in hot water and set aside to crystallize. Hypnal forms colorless crystals, which melt at  $67.5^\circ C.$  ( $154^\circ F.$ ), and are readily soluble in warm water. It is employed as a hypnotic and analgesic in doses of 1 to 2 Gm. (15 to 30 grains).

*NAPHTHOPYRINE* (Beta-Naphthol-Antipyrine) is a molecular compound of beta-naphthol and antipyrine, obtained by trituration.

**PHENOPYRINE** is prepared from equal parts of phenol and antipyrine. It is an oily, colorless fluid, free from odor, insoluble in cold water.

**PYROGALLOPYRINE** is obtained by reaction between pyrogallol and antipyrine.

**RESOPYRINE** ( $C_{11}H_{12}N_2O + C_6H_4(OH)_2$ ) is obtained by reaction between antipyrine and resorcin in solution in molecular proportions. This is obtained by crystallization in fine rhombic crystals, which are insoluble in water and soluble in 5 parts of alcohol. Nothing definite is known concerning its therapeutic properties.

**ANTIPYRINE MANDELATE.** See Tussol.

**ANTIPYRINE PHENYL-GLYCOLATE.** See Tussol.

**ANTIPYRINE SALICYLATE.** See Salipyryn, under Antipyrin.

**ANTIRHEUMATIN.**

This compound of sodium salicylate and methylene blue (q. v.) forms blue, prismatic crystals, soluble in water and alcohol. Recommended as an antirheumatic in doses of 0.06 to 0.09 Gm. (1 to  $1\frac{1}{2}$  grains).

**ANTISEPSINE.**  $C_6H_4Br NH-CH_3CO$ .

*Synonyms:* Asepsine; Para-Brom-Acetanilid; p-Mono-Brom-Phenyl-Acetanilid.

Asepsine is obtained by adding bromine, in molecular proportions, to a solution of acetanilid in glacial acetic acid; the white precipitate formed is recrystallized from alcohol. It forms colorless crystals, which melt between  $165^\circ$  and  $166^\circ C.$  ( $29^\circ$  to  $330.8^\circ F.$ ) It is but slightly soluble in water, more so in alcohol. Its properties are those of an antipyretic, in doses of 1 to 2 Gm. (15 to 30 grains); it is also of value in treatment of muscular rheumatism and neuralgia.

**ANTISEPTOL.** (Chemical Formula Uncertain).

*Synonyms:* Antiseptolum; Cinchonin-Herapathit; Cinchonin Iodosulphate.

To a solution of 25 parts of cinchonin sulphate, in 2,000 parts of water, is added a solution of 10 parts of iodine and 10 parts of potassium iodide in water, the precipitate is collected, washed and dried. This constitutes a red-brown powder, which is insoluble in water, but very soluble in alcohol and chloroform. It contains about 50% of iodine.

Antisep<sup>o</sup>tol is employed as a substitute for iodoform.

**ANTISPASMIN.**  $C_{23}H_{26}NO_6Na + 3C_6H_4(OH)COONa$ .

This is a double salt of narceine sodium and salicylate of sodium. It forms a white, slightly hygroscopic powder, which dissolves readily in water. The compound contains about 50% of narceine and has an alkaline reaction. Antispasmin is a hypnotic and sedative, being administered in doses of 0.01 to 0.1 Gm. ( $\frac{1}{6}$  to  $1\frac{1}{2}$  grains).

**ANTITETRAIZIN.**

A derivative of quinine, recommended by Zambelletti in treatment of neuralgia, influenza, etc., in doses of 0.2 to 0.25 Gm. (3 to 4 grains).

**ANTITHERMAL.**

A proprietary febrifuge.

**ANTITHERMIN.**  $CH_3C(C_6H_5N_2H)C_2H_4COOH$ .

*Synonym:* Phenylhydrazine-Lævulinic Acid.

This compound is obtained by interaction between a solution of phenylhydrazine in acetic acid and lævulinic acid. It occurs in colorless, tasteless crystals, which melt at  $108^\circ C.$  ( $226.4^\circ F.$ ), almost insoluble in cold water.

Antithermin is employed as an antipyretic in pulmonary phthisis and morbus Brightii, the dose being 0.2 Gm. (3 grains).

**ANTITOXINE.** See Diphtheria Antitoxine.

**ANTITOXINE.**

A proprietary antipyretic, not to be confounded with the generic term "Antitoxine," the blood serum of immunized animals.

**APIOL.**  $C_{12}H_{14}O_4$ .

A stearoptene obtained from the fruits of *Petroselinum Sativum*. The alcoholic extract of the fruit is reduced to extractive consistence and the extract washed with ether, whereby the apiol goes into solution and on evaporation of the ether crystallizes. The so-called *liquid apiol* is merely an alcoholic extract of the parsley fruit.

Apiol forms colorless needles, of feeble parsley-like odor, melting at 32° C. (89.6° F.), insoluble in water, very soluble in alcohol, ether, fixed and volatile oils.

It is employed as an antiperiodic and against dysmenorrhœa. Dose 0.25 Gm. (4 grains).

**APOCODEIA HYDROCHLORATE.**  $C_{18}H_{19}NO_2 \cdot HCl$ .

*Synonym:* Apocodeinum Hydrochloricum.

This is prepared from codeine in a manner analogous to the manufacture of apomorphine from morphine. Apocodeine hydrochlorate forms an amorphous, yellowish powder, soluble in alcohol and water. Its properties are similar to those of apomorphine, it being employed as an expectorant in doses of 0.06 to 0.08 Gm. (1 to 1½ grains).

**APYONIN.**

A yellow, crystalline powder, introduced as a rival to auramine for use in ophthalmic surgery. It is slightly soluble in water and readily in alcohol.

**ARBUTIN.**  $(C_{12}H_{16}O_7)_2 + H_2O$ .

A glucoside obtained from the leaves of the bearberry, *Arctostaphylos uva ursi*.

It occurs in colorless, silky needles, which melt at 170° C. (333° F.), soluble in 8 parts of cold water and 16 parts of alcohol. Arbutin is employed in diseases of the kidneys and urinary tract, being given in doses up to 5 Gm. (75 grains).

**ARECOLIN.**  $C_8H_{13}NO_2$ .

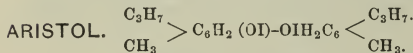
A liquid alkaloid obtained from the betel-nut (*Areca catechu*). It is a strongly alkaline liquid, miscible with water, alcohol or ether; boiling at 220° C. (428° F.)

Arecolin is employed as an anthelmintic, in doses of 0.003 to 0.004 Gm. (1-20 to 1-16 grain). Great care should be observed in its administration, as it is a powerful heart poison.

The *hydrochlorate* of arecolin, a soluble crystalline salt, melting at 167° C., is also employed for the same purposes as the above.

**ARGENTAMIN.**

An antiseptic, employed in gonorrhœa. It is a solution of silver phosphate in aqueous solution of æthylendiamine. In the preparation of this the manufacturers have sought to present an antiseptic, which does not precipitate albumen, held in solution in a non-corrosive and non-toxic solvent. It has been found that the antiseptic power of strong alkaline solvents is greater than simple aqueous solutions, since the alkalies dissolve the membrane of the micro-organism; as organic bases adapted to this purpose are æthylendiamine and alkyl derivatives, piperazin, etc. As antiseptics, which, in conjunction with these organic bases, do not precipitate albumen, are phenol, cresol, thymol, naphthol, guaiacol and silver salts. The solutions are prepared thus, after the patent: 10 parts of æthylendiamine are dissolved in 500 parts of water, adding 10 parts of freshly dissolved cresol. Where creosote or guaiacol is employed, it is better to use a larger amount of the base (æthylendiamine). For the preparation of the silver solutions 10 parts of silver phosphate (nitrate or chloride) are added slowly, with constant stirring, to a solution of 10 parts of the base in 100 parts of water.



*Synonyms:* Annidalin; Di-Iodo-Dithymol; Di-Thymol-Iodide.

To a solution of 5 parts of thymol and 1.2 parts of sodium-hydrate in 10 parts of water, add gradually under constant stirring, a solution of 6 parts of iodine and 9 parts of potassium iodide in 10 parts of water. The precipitate is washed with water and dried at low temperature. Aristol forms a pale chocolate colored amorphous powder, insoluble in water and glycerin, slightly soluble in alcohol, readily in ether and collodion; light and heat cause its decomposition. Aristol contains 45.8 per cent. of iodine. This compound was introduced as a substitute for iodoform, possessing the advantage of being odorless. Ointments containing it are usually prepared of the strength of 5 to 10 per cent.; other forms of applying it are solutions in oils, ether and collodion.

**AROPHENE.** A proprietary dental anæsthetic.

**ASAPROL.**  $(C_{10}H_8 \cdot b OH \cdot a SO_3)_2 Ca + 3H_2O$ .

*Synonym:* Beta-naphtol-*a*-mono-sulphonate of calcium.

This is prepared by saturating an aqueous solution of Beta-naphtol-*a*-monosulphonic acid with calcium carbonate, evaporating and crystallizing the salt. Asaprol forms a colorless to pale reddish inodorous powder, which is soluble in 1½ parts of water and 3 parts of alcohol.



It is employed as an antipyretic and analgesic in doses of 1 to 4 Gm. (15 to 60 grains).

ASEPSINE. See Antiseptine.

#### ASEPTIC ACID.

This should not be confounded with aseptol, asepsin or antiseptin. Aseptic acid is an aqueous solution of 5 Gm. boric acid in 1000 Gm. of hydrogen peroxide (5%) with or without the addition of 3 Gm. of salicylic acid. (Thoms.)

The properties of this solution are antiseptic.

ASEPTOL.  $C_6H_4$   $\left\langle \begin{array}{l} OH \quad (1). \\ SO_3H. \quad (2). \end{array} \right.$

*Synonyms:* Acidum Sozolicum; Sozolic Acid; Ortho-Phenol-Sulphonic Acid; Ortho-Sulpho-Carboic Acid.

Equal parts of concentrated sulphuric acid and phenol are mixed, the two liquids kept at as low a temperature as possible, otherwise, by higher temperature the para-acid forms instead of the ortho. After standing several days, it is poured into water and neutralized with barium carbonate; the barium sulphate is filtered off, the filtrate containing the barium salt of sozolic acid. The barium is removed from this compound by careful addition of sulphuric acid.

Aseptol is a 33 1-3 per cent. solution of ortho-phenol-sulphonic acid, its specific gravity being 1.155; it possesses a feeble odor resembling phenol. On long standing it gradually goes over into the para compound. Aseptol is employed as an antiseptic wash in 10 per cent. solution. Its solutions in glycerin, oil or alcohol are inactive. It is administered internally as an anti fermentive in like doses as salicylic acid.

ASPARAGIN.  $C_2H_3(NH_2)$   $\left\langle \begin{array}{l} CONH_2 \\ COOH \end{array} \right. + H_2O$

*Synonyms:* Asparamid; Amido-Succino-Amide.

A crystalline principle which occurs in asparagus and marshmallow root, being obtained from the latter by evaporating the aqueous extract to a concentrated volume and crystallizing.

Asparagin forms colorless crystals, which are only slightly soluble in cold water and alcohol.

It is employed as a diuretic in doses of 0.05 to 0.1 Gm. (0.7 to 1.5 grains).

ASPARAMID. See Asparagin.

ASPIDOSPERMIN.  $C_{20}H_{30}N_2O_2$ .

An alkaloid isolated from the bark of *Aspidosperma Quebracho*. It occurs in colorless crystals, which are insoluble in water and soluble in about 48 parts of alcohol. It is employed in treatment of asthma, dyspnoea, emphysema, etc., in doses of 0.016 to 0.03 Gm. ( $\frac{1}{4}$  to  $\frac{1}{2}$  grain).

#### ATHANON.

A proprietary disinfectant.

AURAMINE. See Pyoktaninum Aureum.

#### BACILLIN.

A proprietary deodorizer and disinfectant.

#### BENZACETIN.

*Synonym:* Acet-Amido Methyl-Salicylic Acid.

This compound forms colorless crystals, melting at 205° C. (401° F.), and almost insoluble in water. Recommended as an antineuralgic, in doses of 0.5 to 1. Gm. (8 to 15 grains).

BENZANALGENE. See Analgene.

BENZANILIDE.  $C_6H_5NHCO C_6H_5$ .

*Synonym:* Benzoyl-Anilide.

Obtained by the action of benzoyl chloride on aniline in the presence of caustic soda. It forms colorless crystals, insoluble in water, soluble in alcohol, melting at 163° C. (325.4° F.)

Benzanilide is employed as an antipyretic, suitable for children, the dose being 0.1 to 0.5 Gm. (1.5 to 8 grains), according to age.

BENZONAPHTHOL.  $C_6H_5CO_2 \cdot C_{10}H_7$ .

*Synonyms:* Beta-Naphthol Benzoate; Benzoyl-Beta-Naphthol.

This compound is analogous to betol (naphtho-salol), being a naphthyl ester of benzoic acid ( $C_6H_5CO_2H$ ), and is obtained by the action of benzoyl chloride on beta naphthol. Benzonaphthol occurs in crystalline needles, or powder, inodorous, tasteless, insoluble in water, soluble in alcohol and chloroform, melts at  $110^\circ C.$  ( $230^\circ F.$ ) Employed as an intestinal antiseptic in doses of 0.25 to 0.5 Gm. (4 to 8 grains), being split up in the intestines into beta-naphthol and benzoic acid.

**BENZO PARA-CRESOL.**  $C_6H_4(CH_3)(CO-C_6H_5)$ .

Prepared by action of benzoyl chloride on the sodium salt of para-cresol. Insoluble in water. Soluble in ether and hot alcohol. Properties antiseptic.

**BENZOSOL.**  $C_6H_4OCH_3OCOC_6H_5$ .

*Synonyms:* Guaiacol Benzoate; Benzoyl-Guaiacol.

This is a compound of guaiacol, in which a hydrogen atom of its hydroxyl is replaced by benzoyl. It is obtained by the action of benzoyl chloride on the sodium salt of guaiacol. Benzosol occurs as a colorless, crystalline powder, inodorous, tasteless, melting at  $50^\circ C.$  ( $122^\circ F.$ ); insoluble in water, readily soluble in alcohol. It contains 54% of guaiacol.

This compound is employed as an antiseptic in the treatment of phthisis, the dose being 0.25 to 0.5 Gm. (4 to 8 grains).

**BENZOYL-ANILIDE.** See Benzanilide.

**BENZOYL-BETA-NAPHTHOL.** See Benzonaphthol.

**BENZOYL-GUAIACOL.** See Benzosol.

**BENZOYL-PARA-CRESOL.** See under Cresol.

**BENZOYL-PSEUDO-TROPEIN HYDROCHLORIDE.** See Tropa-Cocaine Hydrochloride.

**BENZOYL-SULPHONIC-IMIDE.** See Saccharin.

**BETOL.**  $C_6H_4(OH)COO.C_{10}H_7$ .

*Synonyms:* Naphthalol; Naphthosalol; Salinaphthol; Salicylic naphthylether.

Salol and betol are derivatives of salicylic acid, differing from one another in that in the former, a hydrogen atom of the salicylic acid is replaced by a phenyl group ( $C_6H_5$ ) while in the latter, it is replaced by a naphthyl group ( $C_{10}H_7$ ). Betol is prepared by heating together a mixture of beta-naphthol-sodium, sodium salicylate and phosphorus oxychloride. It forms a white, inodorous and tasteless, crystalline powder, which melts at  $95^\circ C.$  ( $203^\circ F.$ ), almost insoluble in water, but dissolves readily in alcohol and ether. Betol is employed as an intestinal antiseptic; it is also of value in treatment of vesical catarrh and articular rheumatism. The dose is 0.3 to 0.5 Gm. (5 to 8 grains).

**ALPHOL** is the corresponding salicylic ester of a-naphthol.

It is employed in doses of 0.5 to 1.0 Gm. (8 to 15 grains) in treatment of articular rheumatism and gonorrhœic affections.

## BISMUTH COMPOUNDS.

The various organic salts of bismuth are prepared by interaction between a solution of bismuth nitrate [ $Bi(NO_3)_3$ ] and a salt of the organic acid, the resulting bismuth compound precipitating. In order to obtain a clear aqueous solution of bismuth nitrate it is necessary either to dissolve the crystals, first in glycerin (2:3), then diluting with water, or to add sufficient nitric acid to the mixture of bismuth nitrate and water to effect a clear solution; in this latter instance it is necessary that the solution of organic salt be slightly alkaline. Bismuth nitrate may be also dissolved in a 25% sodium chloride solution or in acetic or diluted nitric acid.

**ALBUMINATE.** A pale gray or white insoluble powder, containing about 9% of bismuth. Employed in gastric and intestinal cramps, in doses of 0.5 to 1 Gm. (8 to 15 grains).

**BENZOATE** (Sub-benzoate.)  $Bi(C_6H_5CO_2)_3$ .  $Bi(OH)_3$ . By the heat of a water bath, 20 parts of bismuth nitrate  $Bi(NO_3)_3$  are dissolved in 30 parts of glycerin, then diluted with 70 parts of water and poured slowly into a solution of 20 parts of sodium benzoate in 1,000 parts of water. (This order must not be reversed). The resulting precipitate is washed with warm water until the washings no longer react for nitric acid (Diphenylamine T. S.), then dried at a temperature not above  $80^\circ C.$  Bismuth benzoate forms a white insoluble powder, which is employed as a dusting powder for torpid ulcers; also used internally, being preferred by many to bismuth salicylate.

**DITHIOSALICYLATE, or THIOFORM.** See under Dithiosalicylic Acid.

**NAPHTHOLATE.** Obtained by adding a solution of beta-naphthol in an alkali to a solution of bismuth nitrate, the latter being dissolved by aid of glycerin (see above) or a dilute acid. The precipitated bismuth naphtholate is well washed and

dried at low temperature. It forms a brownish, tasteless powder, insoluble in water; it is employed as an intestinal antiseptic, in doses of 1 to 2 Gm. (15 to 30 grains).

**OLEATE** ( $C_{17}H_{33}CO_2$ )<sub>3</sub>Bi. Obtained by precipitating a solution of sodium oleate with a solution of an equivalent amount of bismuth trinitrate; the solution of the latter being prepared as above directed. An insoluble powder possessing emollient and mild astringent properties; employed in various skin diseases.

**OXYIODIDE, SUBIODIDE, or BASIC IODIDE.** BiOI. Crystalline bismuth trinitrate 95.4 Gm. is dissolved in 120 Cc. of glacial acetic acid; this solution is then poured, under constant stirring, into a solution of 33.2 Gm. of potassium iodide and 50 Gm. of sodium acetate in two liters of water. The precipitated oxyiodide is then washed by decantation, strained off and dried at 100° C. This is a reddish-brown heavy powder, insoluble in all solvents, except acid and alkali solutions, by which it is decomposed. Recommended as an antiseptic, combining the action of iodine and bismuth.

**OXYCHLORIDE (Subchloride).** This is made by pouring a solution of bismuth trinitrate in diluted nitric acid into a solution of common salt. The white precipitate is well washed and then dried. Its medicinal uses are the same as those of the subnitrate.

**OXY-IODO-GALLATE, or AIROL,**  $C_6H_2(OH)_3CO_2BiOH$ , is a substitute for iodoform, applied in ointment (water-free lard or lanolin) or dusted on in powder. It is light grayish-green in color; has no odor or taste.

**PHENOLATE, or CARBOLATE,** Bi(OH)<sub>3</sub>, C<sub>6</sub>H<sub>5</sub>O. Prepared by interaction between a solution of bismuth trinitrate (see above) and a solution of sodium phenolate. Gray colored, insoluble, inodorous powder, used as an intestinal antiseptic in doses of 0.5 to 1 Gm. (8 to 15 grains) also externally as an antiseptic dusting-powder.

**PYROGALLATE,** [C<sub>6</sub>H<sub>3</sub>(OH)<sub>2</sub>O]<sub>2</sub>BiOH. Prepared by dissolving 150 parts of pyrogallic acid in 650 parts of a 25 per cent. sodium chloride solution, and adding this solution to 316 parts of bismuth trichloride dissolved in 1000 parts of a salt solution of the same strength. After digesting on a water-bath for one half hour, the solution is poured into water, and the basic bismuth salt thus precipitated is washed with water acidulated with nitric acid until the washings are free from chlorides. Forms a yellow insoluble powder, which is recommended as an internal and external antiseptic.

**RESORCINATE.** A solution of bismuth trinitrate is added to a solution of resorcin in excess of alkali. It forms a yellowish-brown powder which contains about 40 per cent. of Bi<sub>2</sub>O<sub>3</sub>. This compound is employed in treatment of chronic and acute catarrh of the stomach. The dose is not known.

**SALICYLATE.** (Bi (C<sub>7</sub>H<sub>5</sub>O<sub>3</sub>)<sub>3</sub>, Bi (OH)<sub>3</sub>+3H<sub>2</sub>O). The following process of L. Wolmann (Apoth. Ztg. 9.978) yields a bismuth salicylate of constant composition. Twenty-five parts of metallic bismuth in coarse powder is added in small portions to 125 parts of nitric acid (sp. gr. 1.20), heated to 75° to 90° C.; toward the end of the operation the temperature is increased to boiling. After standing several days, the fluid is decanted and evaporated to low bulk and crystallized. The crystals of bismuth nitrate are washed with a little water containing nitric acid, and, after draining, 48.6 parts of the crystals are dissolved in about 200 parts of dilute acetic acid and the solution rendered alkaline by the addition of aqua ammoniac. The precipitate is well washed by decantation, until the wash water ceases to give a blue color on addition of a piece of zinc and a few drops of iodide of starch solution. The precipitate is brought to a paste by triturating with a little water in a mortar, then adding 13.8 parts of salicylic acid and heating on a water bath until the blue white color changes into that of a yellow-white. The mass is then collected on a muslin strainer, pressed and dried at a temperature not above 75° C. The bismuth salicylate thus obtained is a white, inodorous, tasteless and insoluble powder containing 64.65 per cent. of Bi<sub>2</sub>O<sub>3</sub>.

**CERIUM-SALICYLATE** forms an insoluble, pink-colored powder, being a valuable remedy in the treatment of diseases of the gastric and intestinal mucous membranes. Dose 1 to 2 Gm. (15 to 30 grains).

**SUBGALLATE.** See Dermatol.

**SULPHITE.** Prepared by interaction between solutions of sodium sulphite and bismuth nitrate, the latter being brought into solution by means of glycerin (see Bismuth Salts). Bismuth sulphite possesses an antiseptic and antifermentative action, being employed as such in intestinal disorders. Dose same as the subnitrate.

**VALERIANATE.** This is made by mixing 32 parts of bismuth subnitrate made into a thick paste with water, with a solution of sodium carbonate 11 parts, valeric acid 9 parts and water 30 parts; this mixture is allowed to digest for one hour, frequently stirring; the undissolved precipitate is collected, washed with cold water and dried at 30° C. It forms a white insoluble powder, possessing a strong valerian-like odor. Bismuth valerianate possesses the effect of the bismuth salts in addition to the anodyne action of the valeric acid. Dose is 0.05 to 0.25 Gm. (1 to 4 grains).

## BOLDIN.

A principle obtained from the leaves of the *Boldoa chilensis*. It is a white, amorphous, bitter powder, almost insoluble in water, readily soluble in alcohol, ether and chloroform. Employed as a tonic, also as hypnotic. Dose 0.064 Gm. (1 grain).

**BORAL.**

*Synonym:* Aluminum Boro-Tartrate.

Through the interaction between aqueous solutions of borax and aluminum sulphate, aluminum borate is obtained according to the following equation:  $3\text{Na}_2\text{B}_4\text{O}_7 + \text{Al}_2(\text{SO}_4)_3 = 3\text{Na}_2\text{SO}_4 + \text{Al}_2(\text{B}_4\text{O}_7)_3$ . The resulting precipitate is washed with water till free from sodium sulphate, then 1 part of this aluminum borate is dissolved by the heat of the water bath, in 10 parts of water, by means of 1 part of tartaric acid and evaporated to dryness at not above  $40^\circ\text{C}$ . The resulting aluminum-boro-tartrate (Boral) forms a soluble crystalline powder, which is recommended as an astringent antiseptic, either dry or in aqueous solution.

**BOR-SALICYLATE.**

A soluble and harmless antiseptic obtained by triturating together 32 parts of sodium salicylate and 25 parts of boric acid with a small amount of water; the mass soon becomes hard, when it is dried and powdered.

**BORO-SALICYLATE OF GLYCERIN.**

Boric and salicylic acids, when heated in the presence of glycerin, dissolve in large proportions, but, on cooling, the mixture soon becomes turbid, forming a thick and granular mass. If this mixture be heated anew until it boils and a small quantity of calcined magnesia be then added, the solution after cooling remains perfectly limpid. The product thus obtained is miscible with water in all proportions. This boro-salicylate of glycerine enables the operator to obtain extemporaneously a solution containing equal parts of the two acids at a degree of concentration impossible with any other method. Moreover, the microbicide and antiseptic properties of the salicylic and boric acids are in nowise affected by their being transformed into a neutral or basic salt. The following is the formula:

Boric acid .....	10 Gm.
Salicylic acid.....	10 "
Distilled water.....	10 "
Thirty per cent. dist. glycerin.....	40 "

Heat the mass in a flask until it boils and then add 1 Gm. calcined magnesia; reduce the fire and evaporate all the water, obtaining, after cooling, 50 Cc. of the glycerole or boro-salicylate, 5 Cc. of which will contain exactly 1 Gm. each of salicylic and boric acids.

**BRASSICON.**

A new headache remedy, a green-colored mixture, consisting, according to the *Süddeutsche Apotheker Zeitung*, of 2 Gm. oil of peppermint, 6 Gm. camphor, 4 Gm. ether, 12 Gm. alcohol and 6 drops of mustard oil.

**BROMAL-HYDRATE. C Br. COH+H<sub>2</sub>O.**

*Synonym:* Tri Brom-Aldehyde-Hydrate,

A mixture of alcohol 1 part and bromine 4 parts is heated to  $140^\circ\text{C}$ ., then allowed to cool slowly; on standing, crystals of bromalhydrate separate. It forms colorless crystals, soluble in water, melting at  $53.5^\circ\text{C}$ . ( $128.3^\circ\text{F}$ .); when heated to  $103^\circ\text{C}$ , it is decomposed into bromine and water.

Bromal-hydrate is employed as a sedative and antispasmodic, its action being the same as that of chloral hydrate, being given, however, in smaller doses, [0.1 to 1 Gm. ( $1\frac{1}{2}$  to 15 grains)].

**BROMALIN. (C<sub>6</sub>H<sub>12</sub>N<sub>4</sub>, C<sub>2</sub>H<sub>5</sub>Br).**

*Synonym:* Hexamethylene-Tetramin-Brom-Ethylate.

This compound appears in colorless scales, or as a white crystalline powder, readily soluble in water. It is administered to women and children in doses of 2 to 4 Gm. (30 to 60 grains), as a nervine and sedative.

**BROMAMIDE. C<sub>6</sub>H<sub>2</sub>Br<sub>3</sub>.NH<sub>2</sub>.HBr.**

*Synonym:* Tri-Brom-Anilin Hydrobromide.

Nitrotribrombenzol is reduced by means of nascent hydrogen, the resulting product being treated with hydrobromic acid. This occurs in colorless, tasteless crystals, melting at  $117^\circ\text{C}$ . ( $242.6^\circ\text{F}$ .), being employed as an antineuralgic in doses of 0.6 Gm. (10 grains).

**BROMOFORM. C H Br<sub>3</sub>.**

*Synonym:* Tri-Brom-Methane.

This analogue of chloroform is prepared by the action of sodium hypobromite on acetone. It forms a clear, colorless liquid, of chloroformic odor and taste, its specific gravity is 2.9 and boiling-point  $132^\circ\text{C}$ . ( $305.6^\circ\text{F}$ .). Bromoform is only very slightly soluble in water, but readily in alcohol. It is employed in treatment of whooping-cough in daily doses of 5 to 20 drops.

**BROMOL.**  $C_6H_2Br_3OH$ .

*Synonyms:* Tri-Brom-Phenol; Bromphenol.

This compound is obtained by pouring an aqueous solution of bromine in an aqueous solution of phenol, a white crystalline precipitate resulting. The precipitate is washed and crystallized from alcohol. Bromol forms colorless crystals, which are insoluble in water, very soluble in alcohol, fatty and volatile oils. It is employed externally as an antiseptic in solution (1:30 olive oil), or ointment (1:10), or as a dusting powder. In the treatment of diphtheria it is used in a 4% glycerin solution.

**BROMO-PHENOL.**

*Synonym:* Ortho-Bromo-Phenol.

This is a dull, violet-colored liquid, having a phenol-like odor; obtained by treating phenol with bromine. It is employed in the form of a 1 to 2% ointment in the treatment of erysipelas.

**BROM-PHENOL.** See Bromol.**BURSIC ACID.**

The active principle of the *Bursa pastoris*. Forms a pale, yellow, hygroscopic mass, of astringent taste. Employed subcutaneously as a hæmostatic, being of equal value to ergot.

**BUTYL-CHLORAL-HYDRATE.**  $C Cl_2-CH_2-CH_2-COH-H_2O$ .

*Synonym:* Croton Chloral.

A current of chlorine gas is passed through paraldehyde until saturated, the resulting butyl-chloral is purified by distillation, and brought in contact with water. Butyl-chloral-hydrate forms colorless, crystalline scales, which melt at 78°C., soluble in 30 parts of cold water, readily soluble in alcohol and ether.

It is employed as a hypnotic, in doses of 1 to 1.5 Gm. (15 to 24 grains).

**BUTYL-HYPNAL.** See under Antipyrine.**BUTYROMEL.**

A mixture of 2 parts of fresh unsalted butter and 1 part of honey; intended as a substitute for cod liver-oil.

**BUXINE.**  $C_{16}H_{21}NO_3$ .

An alkaloid from the bark of *Buxus sempervirens*, identical with berberine. Recommended as a tonic and febrifuge; in doses of 1 to 2 Gm. (15 to 30 grains).

**CADMIUM SALICYLATE.**  $(C_6H_4(OH)CO_2)_2Cd$ .

This salt is prepared by the action of salicylic acid upon cadmium hydrate or carbonate, or by precipitating barium salicylate with cadmium sulphate. When prepared by the first method, molecular quantities of the two substances are heated together with water until solution takes place, then evaporated to low bulk and crystallized. Thus obtained cadmium salicylate forms fine, white, tabular crystals, which melt at 300°C. (572°F.) and dissolve in 24 parts of water at 100°C., and 63 parts at 23°C.; also soluble in alcohol, ether and glycerin. The latter method of preparation yields an amorphous powder. Cadmium salicylate possesses a more energetic antiseptic action than the other salts of cadmium, being recommended in treatment of purulent ophthalmia.

**CÆSIUM BITARTRATE.**  $Cs_2C_4H_4O_6$ .

Forms colorless prismatic, strongly refractive crystals which are readily soluble in water. This and the corresponding Rubidium compound were recommended by Schaefer in nervous heart palpitation, in doses of 0.18 to 0.3 Gm.

**CAFFEINE SALTS (DOUBLE SALTS AND DERIVATIVES).**  $C_8H_{10}N_4O_2A + xH_2O$ .

Among the large number of salts of caffeine that have been introduced, a very few have received attention, among the very important of these are the *carbolate*, *phthalate* and *boro-citrate* which are readily soluble, the former two being recommended for hypodermic use.

**CAFFEINE CHLORAL.**  $C_8H_{10}N_4O_2 \cdot C Cl_2COH$ . This is a combination of chloral and caffeine in molecular proportions. It is crystalline and soluble in water. Caffeine-chloral is a sedative and analgesic. Dose 0.2 to 0.3 Gm. (3 to 5 grains).

**CAFFEINE-SODIUM BENZOATE.** Is prepared by evaporating an aqueous solution of one part of caffeine in one of sodium benzoate dissolved in 3 parts of water. It forms white crystalline crusts. Owing to the ready solubility of this and the following double salts, they are especially suitable for subcutaneous use.

**CAFFEINE-SODIUM SULPHONATE.** See Symphorol.

**CAFFEINE-SODIUM SALICYLATE** and **CAFFEINE-SODIUM-CINNAMATE** are prepared in the same manner as the above benzoate, employing equal parts of caffeine and the respective organic sodium salts.

**CAFFEINE TRI-IODIDE.** (Di-Iodo-Caffeine-Hydriodide.)  $(C_8H_{10}N_4O_2I_2HI)_2 + 3H_2O$ . This is prepared by adding a solution of hydriodic acid to a weak alcoholic solution of caffeine. It forms dark-green prisms which are readily soluble in alcohol. Internally it acts like a weak preparation of iodine, the dose being 0.12 to 0.24 Gm. (2 to 4 grains).

**IODO-CAFFEINE.** Is prepared by passing sulphuretted hydrogen into a solution of potassium iodide and caffeine. Iodo-caffeine forms colorless crystals soluble in water; unstable, decomposed by hot water; it is employed in cardiac affections in doses of about 0.3 Gm. (5 grains.)

**IODOL-CAFFEINE.**  $C_8H_{10}N_4O_2 C_4I_4NH$ . A crystalline compound prepared by the interaction of molecular quantities of iodol and caffeine. It is a gray color, inodorous, tasteless and practically insoluble in the ordinary solvents. Iodol-caffeine is employed as an antiseptic like iodol, of which it contains 75%.

**IODO-THEOBROMINE.** Is prepared in like manner to the above caffeine compound, the medicinal properties and dose being the same.

**ETHOXY CAFFEINE.**  $C_8H_9N_4O_2 (OC_2H_5)$ . Is prepared by boiling monobrom-caffeine with caustic potash. It forms crystalline needles which are less soluble in water than caffeine, melting at  $138^\circ C.$  ( $280.4^\circ F.$ ) Ethoxy-caffeine has a similar action to caffeine, being also narcotic. Dose is about 0.2 Gm. (3 grains).

**CAJUPUTOL.** See Eucalyptol.

### CALCIUM BORATE.

Obtained by interaction between aqueous solutions of borax and calcium chloride. Recommended as an antiseptic dusting-powder in treatment of moist eczema, burns, etc.; likewise internally in doses of 0.2 to 0.4 Gm. (3 to 6 grains) for diarrhœa of children.

**CALCIUM SALICYLATE.**  $[C_6H_4 \left\langle \begin{array}{l} OH \\ COO \end{array} \right\rangle_2]_2 Ca + 2H_2O$

Salicylic acid is neutralized with an equivalent amount of calcium carbonate (free from iron) in the presence of hot water, the filtered solution is then evaporated and crystallized. Calcium salicylate forms a white, crystalline powder, inodorous and tasteless, almost insoluble in cold water.

It is employed in the diarrhœa of children in gastro-enteritis, the dose being 0.5 to 1.5 Gm. (8 to 24 grains).

### CALOLACTOSE.

An intestinal disinfectant, said to consist of a mixture of calomel (1), bismuth subnitrate (1), and lactose (8).

### CAMPHOID.

This is prepared by dissolving pyroxyton, 1 part, in a solution of 20 parts of camphor in alcohol. It constitutes a thick, colorless fluid, which, because of its rapidity in drying, leaving a thin film when applied to the skin, serves as an excellent vehicle for iodoform, chrysarobin, etc.

### CAMPHOPYRAZOLON.

 $C_{17}H_{20}N_2O$ .

This is a compound of phenyl-hydrazine and campho-carboxylic acid. It occurs in fine crystalline needles, melting at  $132^\circ C.$  ( $269.6^\circ F.$ ), insoluble in water and ether, soluble in alcohol. Campho-pyrazolon is proposed as a substitute for camphor.

**CAMPHOR, NAPHTHOL.** See Beta-Naphthol Camphor.

**CAMPHOR, PHENYLATED.** See Phenol Camphor.

### CAMPHOR SALICYLATE.

This is prepared by fusing together 84p. of camphor and 65p. of salicylic acid, which solidifies to a crystalline mass. It may be obtained in well formed crystals by recrystallization from benzol. Soluble 1 in 20 in the fatty oils; almost insoluble in water and glycerin. Employed externally in ointment form as an application in lupus and various skin diseases, internally in treatment of certain diarrhœal complaints. Dose 0.05 to 0.25 Gm. (4-5 to 3.8 grains).

**CAMPHOR, SALOL.** See under Salol.

### CAMPHORIC ACID.

 $C_8H_{14}(COOH)_2$ .

This is a dibasic acid obtained by the action of hot nitric acid on camphor. It forms white, scaly crystals, odorless, melting at  $186.5^\circ C.$  ( $368^\circ F.$ ) It is soluble in 200 parts of cold and 10 parts of boiling water; very soluble in alcohol.

It is employed in treatment of night sweats of consumptives, likewise in acute and chronic diseases of the respiratory tract. The dose is from 1 to 1.5 Gm. (15 to 24 grains). When applied topically it is used in a solution of from 1 to 4% strength.

### CANNABIN.

An alkaloid isolated from *Cannabis Sativa*, or Indian Hemp. Cannabin forms a brown, syrupy liquid, which is employed as a hypnotic, the dose being 0.06 to 0.3 Gm. (1 to 5 grains).

*CANNABIN TANNATE* forms a yellowish-gray colored powder of bitter and slightly astringent taste, only slightly soluble in water, alcohol and ether, very soluble in acidulated water. It is employed as a hypnotic in nervous sleeplessness, the dose being 0.25 to 1 Gm. (3 to 15 grains).

### CANNABINON.

A resinous body obtained from the flowering tops of the *Cannabis Sativa*. Cannabinon appears in form of a dark-brown, soft resin, insoluble in water; soluble in alcohol, ether, chloroform, fatty and volatile oils. Recommended as a sedative and hypnotic, in doses of 0.03 to 0.1 Gm. ( $\frac{1}{2}$  to  $1\frac{1}{2}$  grains).

### CANNONIN.

A proprietary disinfectant.

### CANTHARIDIN. $C_{10}H_{12}O_4$ .

The active vesicating principle obtained from the *Cantharis vesicatoria* and other members of the family of *Coleoptera*. Cantharidin forms colorless crystals, which are insoluble in water, but very soluble in chloroform; it dissolves quite readily in ether and the fatty oils, with caustic alkalies it forms salts soluble in water. This principle is frequently employed in place of cantharides. The salts, or cantharidates, are employed hypodermically in treatment of tuberculosis, 0.2 Gm. of cantharidin and 0.4 Gm. of potassium hydrate being dissolved in 1,000 Cc. of distilled water; of this solution 0.2 to 0.4 Cc. (0.0001 to 0.0002 Gm.) being employed for a subcutaneous injection.

### CAPITCURA.

A proprietary antipyretic and analgesic.

### CARDINE.

A clear yellow, fluid, prepared by digesting the finely chopped hearts of sheep with an equal quantity of glycerin and boric acid solution in a well-closed vessel, and subsequently filtering. Employed subcutaneously in 3 to 5 Cc. doses as a heart tonic and diuretic.

### CARDOL.

A blistering oil obtained from the pericarps of the *Anacardium occidentale*, by extraction with ether. Employed externally as a vesicant.

### CARNIFERRIN.

This is a meat preparation, of German production, being a combination of the phosphoric acid of the body with 30% of iron. It is given in 3 to 5 grain doses for children and 8 grains for adults. It is readily absorbed and tasteless, and mixes well with acid or alkaline solutions.

### CARNOLIN.

An aqueous solution containing 1.5% of formaldehyde; specific gravity 1.0035. Recommended as a harmless disinfectant and preservative for food.

### CARPAIN. $C_{14}H_{27}NO_2$ .

An alkaloid obtained from the leaves of *Carica papaya*. Carpain forms handsome colorless crystals of a bitter taste, melting at 121° C. (249.8° F.); it readily unites with acids, forming crystalline salts.

This alkaloid is employed as a substitute for digitalis, being given in doses, hypodermically, of 0.006 to 0.01 Gm. (1-10 to 1-6 grain).

### CARVACROL. $C_{13}H_{13}OH$ .

A phenol found in the essential oil of *Origanum species*. It forms a thick fluid, which boils at 235°C. Carvacrol possesses powerful antiseptic properties.

**CARVACROL IODIDE.**  $C_{13}H_{13}OI$ .

This is prepared analogous to aristol, by the action of iodine upon an alkaline solution of carvacrol. It constitutes a brown-colored powder, which becomes soft at  $50^{\circ}C$ . ( $122^{\circ}F$ .), melting at  $90^{\circ}C$ . ( $194^{\circ}F$ .) to a brown fluid. It is insoluble in water, slightly soluble in alcohol, readily in ether, chloroform and olive oil.

Carvacrol iodide is employed as a substitute for iodoform.

**CETRARIN.**  $C_{18}H_{16}O_8$ .

A bitter principle obtained from Iceland moss, (*Cetraria Islandica*). It forms colorless crystals of a bitter taste, difficultly soluble in cold, but very soluble in hot alcohol.

Cetrarin increases peristalsis, likewise the secretion of saliva, bile and pancreatic juice. Internal dose is 0.1 to 0.2 Gm. (1.5 to 3 grains).

**CHEMIA.**

A proprietary antiseptic.

**CHINASEPTOL.** See under Chinoline.**CHININUM BIMURIATICUM CARBAMIDATUM.** See Quinine Dihydrochloride-[Carbamate].**CHINOLINE.**  $C_9H_7N$ .

A tertiary amine, obtained by the distillation of quinine or cinchonine with potassium hydrate, or, as synthesized by Skraup, by heating a mixture of nitrobenzol, aniline, glycerin and sulphuric acid. Pure chinoline is a yellowish-colored liquid, of aromatic odor, its specific gravity being 1.084; boiling at  $237^{\circ}$ . ( $458.6^{\circ}F$ .). It is almost insoluble in water, very soluble in alcohol and ether. Chinoline is antiseptic, antizygotomic and antipyretic; being employed chiefly as a tooth- and mouth-wash (0.2%).

**DERIVATIVES.**

Chinoline unites readily with the acids forming soluble crystalline salts.

**CHINOLINE SALICYLATE.**  $C_9H_7N C_7H_6O_3$ . A white crystalline powder, soluble in 80 parts of water, very soluble in alcohol, ether, glycerin and the oils. Antifebrile and anti-epetic in doses of 0.5 to 1 Gm. (8 to 15 grains).

**CHINOLINE TARTRATE.**  $(C_9H_7N)_2 (C_4H_6O_6)_4$ . Occurs in colorless, rhombic crystals, soluble in 80 parts of cold water, less so in hot water, soluble in 150 parts of alcohol. Its properties and doses are similar to the above.

**ACETO-ORTHO-AMIDO-CHINOLINE**  $C_9H_6N (NHCH_3CO)$ . This preparation is an analogue of acetanilid, in which chinolin replaces phenyl. It forms colorless crystals, which melt at  $102.5^{\circ}C$ . It possesses antipyretic properties

**DIAPHTHERIN (OXY-CHIN-ASEPTOL).**  $HO.C_9H_6N.HSO_3 C_6H_4OH.C_9H_6N.OH$ . This is a compound of one molecule of oxychinolin with one molecule of phenolsulphonate of oxychinolin. It forms clear, yellow crystals, soluble in water and melting at  $85^{\circ}C$ . ( $185^{\circ}F$ .). Diaphtherin possesses antiseptic properties equal to those of carbolic acid, as also the advantages of solubility and of being non-poisonous. It is employed in  $\frac{1}{2}$  to 1% solution. The solution readily attacks surgical instruments.

**DIAPHTOL (CHINASEPTOL)**  $C_9H_5 (OH) (SO_3H) N$ . This is an ortho-oxychinoline-metha-sulphonic acid, bearing the same relation to chinoline as phenol-sulphonic acid does to benzol. It forms yellowish-colored crystals which are only slightly soluble in cold water, melting at  $295^{\circ}C$ . ( $563^{\circ}F$ .). Its aqueous solution, like that of diaphtherin, gives a green color with ferric chloride. The properties of diaphtol are similar to those of diaphtherin

**KAIRIN.**  $C_9H_{10} (C_2H_5) NO.HCl$ . *Synonyms:* Ethyl Kairin; Kairin A; Oxy-Chinoline-Ethylhydride. This is a derivative of chinoline; its method of preparation is complicated. Kairin was the first synthetical substitute for quinine. It was recommended as an antipyretic in doses of 0.5 to 1 Gm. (8 to 15 grains).

**KAIROLIN.**  $C_9H_{10} (C_2H_5) N.H_2SO_4$ . *Synonyms:* Kairolin A and M; Chinolin-ethylhydride (A); Chinolinmethylhydride (M). Kairin M, is the hydrochloride of  $\alpha$ -oxychinolin-methyltetrahydride, while kairolin A and M are the acid sulphates of ethyl-chinoline-tetrahydride and methyl-chinoline-tetrahydride, respectively. These remedies are not employed since the discovery of other antipyretics.

**LORETIN.** This is a meta-iodo-ortho-oxychinoline-ana-sulphonic acid,  $(C_9H_4I.OH.SO_3H.N)$  a powerful antiseptic discovered by Claus. It forms a yellow, inodorous, crystalline powder, which is only very slightly soluble in water (1:1000), insoluble in ether and the oils, melting at about  $270^{\circ}C$ . ( $518^{\circ}F$ .). Loretin forms a valuable substitute for iodoform, having the advantage of being free from odor and toxic effect. It is employed as a dusting powder, either alone or diluted; in 5 to 10% ointments and 0.1 to 0.2% aqueous solutions.



CHLORALAMID.  $\text{CCl}_3\text{CH.OH. NH.CO.H}$ .*Synonym*: Chloral-Formamide.

This is prepared by interaction between chloral ( $\text{CCl}_3\text{COH}$ ) and formamide ( $\text{HCONH}_2$ ). Chloralamid forms colorless crystals, which melt at  $115^\circ \text{C}$ . ( $239^\circ \text{F}$ .), soluble in 20 parts of cold water and about  $1\frac{1}{2}$  of alcohol; it should not be heated with water.

It is employed as a substitute for chloral hydrate, in doses of 1 to 3 Gm. (15 to 45 grains).

CHLORAL-AMMONIUM.  $\text{CCl}_3\text{CH.OH.NH}_2$ .

This should not be confused with *Chloralamid*. Chloral-ammonium is obtained by passing a current of dry ammonia gas into a solution of chloral in chloroform. It forms colorless needles, which melt at  $34^\circ \text{C}$ . ( $183.2^\circ \text{F}$ .), almost insoluble in water; when boiled with water it is decomposed into chloroform and ammonium formate.

It is used as a hypnotic and analgesic, in doses of from 1 to 2 Gm. (15 to 30 grains).

CHLORALIMID.  $\text{CCl}_3\text{CH.NH}$ .

This body is obtained by heating chloral ammonium. Chloralimid is a crystalline powder, which is almost insoluble in water, easily in alcohol; mineral acids decompose it into chloroform and ammonia salt. Its properties are those of a hypnotic, in doses of 1 to 4 Gm. (15 to 60 grains).

## CHLORAL-ANTIPYRINE (Monochlor-Antipyrine). See under Antipyrine.

## CHLORAL-CAFFEINE.

A combination of chloral and caffeine in aqueous or alcoholic solution, prepared by a patented process, possessing (over caffeine) the advantage of ready solubility.

## CHLORAL FORMAMIDE. See Chloralamid.

CHLORALOSE.  $\text{C}_8\text{H}_{11}\text{Cl}_3\text{O}_6$ .*Synonym*: Anhydrogluco-Chloral.

This is a compound of chloral with grape sugar. Chloralose forms fine colorless needles, which melt at  $184^\circ$  to  $184^\circ \text{C}$ . ( $363.2^\circ$  to  $366.8^\circ \text{F}$ .), soluble in 170 parts of cold water, readily so in alcohol. It is employed as a hypnotic (substitute for chloral), in doses of 0.2 to 0.5 Gm (3 to 8 grains).

## CHLORALOXIMES.

These are a class of bodies which consist of compounds of chloral with various oximes. Among the more important of these are *chloralacetoxime*, *chloral camphoroxime*, *chloral acetaldoxime*, *chloral benzaldoxime*, *chloral nitroso-beta-naphthol*, etc. These compounds are soluble in alcohol and decomposed by heating with water. They are intended as hypnotics, the dosage having not been determined.

## CHLORAL URETHANE. See Uralium.

## CHLOR-METHYL. See Methyl Chloride.

## CHLOROIODOLIPOL.

A chlorine substitution product of phenol, creosote and gualacol, recommended for inhalation in treatment of chronic diseases of the air passages.

## CHLOROLIN.

An antiseptic solution containing chiefly mono- and tri-chlor-phenol. It is recommended as an effectual disinfectant for cesspools, closets, hospitals, etc. As an antiseptic wash in surgical operations a 2 to 3% solution is strong enough. An antiseptic soap is also prepared from it.

CHLORO-PHENOL. (Tri-Chlor-Phenol).  $\text{C}_6\text{H}_2$   $\begin{matrix} < \text{Cl}_3 \\ \text{OH} \end{matrix}$ 

This is a derivative of carbolic acid, in which three atoms of hydrogen are replaced by chlorine; it occurs in the form of colorless, needle-like crystals, with an odor of phenol. This is employed as a 1 to 2% ointment in treatment of erysipelas.

CHLORPHENOL.  $\text{C}_6\text{H}_4$   $\begin{matrix} < \text{Cl} \text{ (1)} \\ \text{OH} \text{ (2)} \end{matrix}$ *Synonyms*: Monochlorphenol; Ortho-Mono-Chlor-Phenol.

The preparation employed under this name consists of a mixture of ortho-monochlorphenol (7 pt.) and alcohol, eugenol and menthol (together 3 pt.) This liquid is employed in diseases of the respiratory organs, from 16 to 30 drops being inhaled daily.

*PARA-MONOCHLORPHENOL.*  $C_6H_4 < \begin{matrix} Cl \text{ (3).} \\ OH \text{ (2).} \end{matrix}$

This is a crystalline body resulting from the chlorination of phenol, possessing greater antiseptic power than the other two isomers. It melts at 37°C. (98.6°F.), is readily soluble in alcohol, but sparingly in water; it is employed as a 1 to 2% ointment in treatment of erysipelas.

*CHLORSALOL.*  $C_6H_4(OH)CO.O C_6H_4Cl$ .

*Synonyms:* Chlorphenol Salicylate; Salicylic-Chlorphenol-Ester.

This is prepared by the action of phosphorus penta-chloride on a mixture of ortho- and para-chlorphenol. Chlorsalol, that is the ortho-phenyl-ester, forms colorless crystals which melt at 55°C. (131°F.), while those of the para-phenyl-ester melt at 72°C. (161.6°F.). Both are insoluble in water and soluble in alcohol. Chlorsalol is employed as a substitute for salol, being more energetic in its action.

*CHLORYL.*

This name has been applied to a mixture of methyl and ethyl chlorides. It is a liquid at 0°C.; employed as an anæsthetic, being milder in effect than ethyl chloride.

*CHROMOSOT.*

Said to consist chiefly of sodium sulphite and sulphate. Used as a disinfectant.

*CHRYSAROBIN.*  $C_{30}H_{26}O_7$ .

A principle obtained from Goa powder, which is a concretion found in the stem and branches of the *Andira Araroba*. It is a light yellow, crystalline powder, very slightly soluble in water, slightly soluble in alcohol, ether and chloroform, freely soluble in alkalis. By oxidation, chrysarobin is converted into chrysophanic acid. It is employed chiefly in treatment of various skin diseases, in ointment of 10% strength.

*CINCHONIN-HERAPATHIT.* See Antiseptol.

*CINCHONIN-IODOSULPHATE.* See Antiseptol.

*CINEOL.* See Eucalyptol.

*CINNAMIC ACID.*  $C_6H_5CH=CH.CO OH$ .

*Synonyms:* Acid Cinnamylic; Beta-Phenylacrylic Acid.

This occurs naturally in Peru and Tolu balsams; it is obtained synthetically by heating benzaldehyde and acetyl-chlorid together under pressure. It forms colorless to yellowish, glossy plates, of melting point 133°C. (271.4°F.). Insoluble in cold, but quite soluble in boiling water.

It is employed, in form of an emulsion or alcoholic solution, as hypodermic injection in the treatment of tubercular affections.

$R_x$	Acid cinnamylic.....	℥.0
	Ol. Amygdal. dulc.....	10.0
	Vitelli Ovi.....	No.1.
	Solut. Natrii chlorati (0.7%).....	q. s.
	Misce ut fiat emulsio.	
	D. S. Injection 0.1 to 1 cc.	

*CINNAMYL-EUGENOL.* See under Eugenol.

*CINNAMYL-GUAIACOL.* See under Guaiacol.

*COCAINE SALTS.*  $C_{17}H_{21}NO_4A$ .

Only the more important of the new combinations will be given. The doses are essentially the same as in the hydrochlorate.

*COCAINE BORATE.* Is employed for subcutaneous injections and eye douches. It is preferable to all other salts of cocaine because of the stability of its aqueous solutions and the indifference of the boric acid.

*COCAINE LACTATE.* Is a soft mass, readily soluble in water; it is of value in treatment of cystitis.

*COCAINE NITRATE.* Is employed in combination with silver nitrate in treatment of diseases of the genito-urinary tract.

*COCAINE PHENATE* or *CARBOLATE.* Forms a soft mass, insoluble in water, very soluble in alcohol. This salt is employed subcutaneously as a local anæsthetic, also as a local application; stronger solutions are required to produce the same degree of anæsthesia as with the hydrochlorate.

*COCAINE SACCHARATE.* Forms hygroscopic, crystalline plates. A 5% solution of this salt corresponds to a 4% solution of the hydrochlorate. Because of its sweet taste it is preferred for throat applications.

CODEINE PHOSPHATE.  $C_{18}H_{21}NO_3 \cdot H_3PO_4 + 2H_2O$ .

This salt occurs in fine colorless needles, a bitter taste, is readily soluble in water and sparingly in alcohol. Codeine phosphate is adapted as a substitute for morphine for administration to children, also employed in most affections of the respiratory organs, etc. Dose 0.025 to 0.05 Gm. (1-3 to  $\frac{3}{4}$  grains).

## CODOL. See Retinol.

COLCHICEIN.  $C_{21}H_{22}(OH)NO_5 + \frac{1}{2} Aq$ .

When colchicin is boiled with dilute sulphuric acid it is converted into colchicein and methyl alcohol. Colchicein forms white crystals, which are soluble in water and alcohol. It should be dispensed with caution, the dose being 0.001 Gm. (1-64 grain) subcutaneously.

COLCHICINE.  $C_{22}H_{25}NO_6$ .

An alkaloid obtained from the *Colchicum autumnale*. Colchicine forms a yellowish white amorphous powder which is readily soluble in water and alcohol; melts at  $145^\circ C$ . ( $293^\circ F$ .) It is employed in treatment of rheumatism, sciatica, etc., in doses of 0.001 Gm. (1-64 grain.)

CONIINE HYDROBROMIDE.  $C_8H_{17}N \cdot HBr$ .

This is the hydrobromate of the liquid alkaloid Coniine, which is obtained from the seeds of the *Conium maculatum*. It forms colorless crystals, which are soluble in water. Employed in the treatment of cardiac asthma in doses of 0.003 to 0.005 Gm. (1-20 to 1-12 grain).

CONVALLAMARIN.  $C_{23}H_{44}O_{12}$ .

A glucoside obtained from roots of the *Convallaria majalis*. It is a white powder, very bitter, soluble in water and alcohol. Employed as a cardiac stimulant in doses of 0.05 Gm. ( $\frac{3}{4}$  grain).

## CONVOLVULIN.

A glucoside obtained from the root of *Ipomœa purga* and other plants of the same genus. An amorphous mass, insoluble in water, readily so in alcohol and acetic acid. Convolvulin is a powerful purgative; dose 0.06 to 0.13 Gm. (1 to 2 grains).

## CORNUTIN.

One of the active principles of ergot. A reddish to yellowish-colored powder which readily forms salts with acids. It is recommended to relieve hæmorrhage arising from abortion, also to increase the vigor of labor pains. The dose is 0.005 Gm. (1-12 grain).

## CORONILLIN.

A glucoside obtained from the seeds of *Coronilla scorpioides*; forms a pale yellow, bitter powder, soluble in water and alcohol, almost insoluble in ether. Strengthens the action of the pulse and increases diuresis. Dose 0.06 to 0.13 Gm. (1 to 2 grains).

COTOIN.  $C_{22}H_{18}O_6$ .

A neutral principle obtained from the coto bark. It forms an amorphous or crystalline powder, which melts at  $130^\circ C$ . ( $266^\circ F$ .), slightly soluble in water, freely soluble in alcohol and ether. Cotoin is employed in treatment of cholera, it is also said to relieve night sweats. The dose is 0.03 to 0.3 Gm. ( $\frac{1}{2}$  to 5 grains).

## CUMARIN. See Coumarin.

## CREOLIN. See under Cresol.

CREOSOL.  $C_6H_3CH_3(OH)(O \cdot CH_3)$ .

*Synonyms*: Homo-Pyrocatechin-Methyl Ether; Homoguaiacol.

This occurs, along with guaiacol, as a constituent of beech-wood tar creosote. It is an oily-like liquid, of aromatic odor, boiling at  $220^\circ C$ . ( $428^\circ F$ .), only slightly soluble in water. Recommended as an antiseptic.

## CREOSOTE CARBONATE. See under Guaiacol.

CREOSOTIC ACID.  $C_6H_3$   $\begin{matrix} < CH_3 \\ < OH \\ < COOH \end{matrix}$ 

*Synonyms*: Cresotinic Acid; Oxytoluic Acid; Homosalicylic Acid.

This may exist as an ortho, meta, or para modification, hence is frequently designated in the plural, as creosotic acids. These bear the same relation to toluene ( $C_6H_5CH_3$ ) that salicylic acid bears to benzene ( $C_6H_6$ ), being then hydroxytoluic acid. They are prepared from the sodium cresylates by a process (Kolbe's) analogous to that used in the manufacture of salicylic acid. The para compound, which crystallizes in white needles melting at  $151^\circ C$ . ( $303.8^\circ F$ .), is the only one that is employed in medicine, in the form of a sodium salt.

**CREOSOTOL.** See under Guaiacol.

**CRESALOLS.**  $C_6H_4(OH)CO_2C_6H_4.CH_3$ .

*Synonyms:* Cresol Salicylates; Cresol Salols.

Ortho-, meta-, and para-cresalol are the salicylic esters of the cresols, analogous to betol and salol, and prepared in a similar manner. A mixture of sodium salicylate and cresylate, in molecular proportions, is heated with phosphorus oxychloride; either ortho, meta, or para cresalol is obtained according to the sodium salt used. These three isomeric cresalols form bulky, white, crys-talline powders, insoluble in water, soluble in alcohol and ether, and sparingly so in oils. The ortho-cresalol melts at 35° C. (95° F.), the meta-cresalol at 74° C. (165.2° F.), and the para-cresalol at 39° C. (102.2° F.)

Externally the cresalols are recommended as antiseptic dusting-powders, also internally as a substitute for salol, being spit up in the system into cresol and salicylic

**CRESOL SALICYLATE.** See Cresalols.  
acid.

**CRESOL SALOLS.** See Cresalols.

**CRESOL, or THE CRESOLS.**  $C_6H_4$   $\begin{matrix} < OCH_3 & (1). \\ & OH & (3). \end{matrix}$

*Synonyms:* Cresylic Acid; Meta-Cresol; Kresol; Meta-Phenol.

The Cresols, of which three isomerides exist (ortho-meta-para) are homologues of phenol and derivatives of toluene. They are obtained by the fractional distillation of that portion of coal-tar oil which comes over between 190°—210° C. The three isomerides are exceedingly difficult to separate; of these the meta-cresol is the most powerful antiseptic. All the cresols possess a creosote-like odor, their antiseptic properties are superior to those of carbolic acid and they are far less poisonous. The only hindrance to their general employment is their insolubility in water. During the past few years various soluble preparations introduced have again brought them into notice; in these, the cresol (o-m-p) is rendered soluble by the addition of soap (*Sapocarbol*, *Lysol*, *Creolin*, *Phenolin*, *Sapocresol*, etc.), or an alkali forming soluble cresylates (*Solveol*, *Solutol*) or by conversion into soluble sulphonic acid derivatives (*Artmann's Creolin*).

#### PREPARATIONS.

The following are preparations of Cresol which have been introduced as antiseptics in surgery.

**ANTINONNIN** is a preparation of ortho-dinitro-cresol potassium, appearing in trade in the form of a soap. It is employed in a 1 part to 1000 solution for the destruction of insects and fungi.

**BENZOYL-PARA-CRESOL**, (Para-Cresol Benzoate)  $C_6H_5COOC_6H_4(CH_3)$ , is prepared by the reaction of phosphorus oxychloride on a mixture of benzoic acid and para-cresol. It forms a crystalline compound which melts at 70° C. (158° F.), insoluble in water, readily soluble in alcohol and ether. It is used as an antiseptic.

**CREOLIN.** This is said to be an emulsion of cresol obtained by means of resin soap. It consists of a brownish-black, syrupy liquid, which, when mixed with water, forms a more or less turbid mixture; with alcohol, ether or chloroform, it forms a clear solution. Creolin is employed in the pure condition, as a 1 to 2% solution; in ointments, dusting-powder or dressings, 10%; internally, it is administered in capsules containing 5 minims.

**IZAL.** According to Squibb, this consists of an emulsion containing about 30% of a new oil produced by a patent process employed in the manufacture of a special form of coke. It is claimed that its antiseptic power is greater than that of carbolic acid, while it is practically non-poisonous.

**KRESIN.** This is a clear brown liquid containing 25% of cresol and 25% of cres-oxy-acetate. It is miscible in all proportions with water.

**LYSOL.** The fraction of coal-tar oil which boils between 190° to 200° C., is dissolved in fat and subsequently saponified, with the addition of alcohol. It forms a clear brown syrupy liquid, containing 5% of the cresols; it is miscible with water, forming a clear, saponaceous frothing liquid. With all other solvents it is miscible in all proportions. Experiments have shown lysol to be five times stronger than carbolic acid in antiseptic power. The strength of the solution employed is usually 0.3, 1 or 2%.

**PARACRESOL** is a patented disinfectant, which is said to mix with water in every proportion, yielding a neutral and almost odorless solution.

**PHENOSALYL.** This is a solution of carbolic, salicylic and benzoic acids, (which have been fused together), in lactic acid. It forms a thick syrupy liquid, which is soluble in cold water to the extent of 7%, readily in warm water, also in alcohol and ether. In antiseptic power it is superior to carbolic acid, being at the same time less toxic. It is employed in 1 to 2% aqueous solutions.

**PIXOL** and **RESOL** are solutions of wood tar in soap.

**SANATOL** is a solution of crude cresol in sulphuric acid.

**SAPOCARBOL**, **KRESAPOL** and **PHENOLIN** are solutions of crude cresols in soap (potassium).

**SAPROL** is a dark brown, oily substance, consisting of a mixture of the crude cresols in an excess of hydrocarbons, obtained from the refining of petroleum. A drawback to its use is its inflammability, also that it does not mix with water.

**SOLUTOL** This is an alkaline solution of sodium cresol in an excess of cresol. It is not suited for surgical dressings or like uses, because of its caustic alkalinity. It is a valuable disinfectant for use in the household and hospital, effectually disinfecting water closets, sinks, cess-pools, etc.

**SOLVEOL** is a solution of cresol in sodium cresotate; it forms a useful disinfectant analogous to Creolin, Lysol, Saprol and Solutol. It is less caustic than solutol, possessing the advantage over creolin and lysol of not exhibiting the greasiness characteristic of these. It is a dark colored liquid, nearly odorless, of a neutral reaction and miscible with water in all proportions. It is especially applicable for surgical uses, a 1/2% solution being employed in dressings and a one to twelve for spray apparatus. It is claimed that a 1/2% solution is more active than a 2% solution of carbolic acid.

**TRICRESOL** is a concentrated preparation of the three cresols (ortho, meta, para), free from all impurities. It forms a clear colorless liquid, of specific gravity 1.045, and soluble to the extent of 2 1/2% in water. A 1% solution of tricresol corresponds to a 3% solution of carbolic acid, having therefore three times the disinfectant value of the latter.

**CRESYLIC ACID.** See Cresol.

**CROTON CHLORAL.** See Butyl-Chloral-Hydrate.

**CROTON-CHLORAL-HYDRATE.** See Butyl-Chloral-Hydrate.

**CRYOSTASE.**

A mixture of equal parts of carbolic acid, camphor, saponin and traces of oil of turpentine. Becomes solid when heated, and liquid when cooled to below 0°C. Recommended as an antiseptic.

**CRYSTALLOSE.**

A name applied to a very soluble crystalline sodium salt of pure saccharin. In consequence of the presence of crystal water, the sweetening power, compared with that of cane sugar, is reduced to 400 times the latter instead of 500 times, as is the case in the pure amorphous saccharin.

**CUBEBIC ACID.**  $C_{28}H_{30}O_7$ .

A principle obtained from the cubeb by extraction with caustic alkalies and afterwards liberated on addition of an acid. Cubebic acid forms a waxy-like body, readily soluble in alcohol and ether, becoming brown on exposure to the air. According to Bernatzik it possesses the antibleorrhagic properties of cubebes; dose 0.3 to 1 Gm. (4 to 15 grains).

**CUMARIN.**

*Synonym:* Coumarin.

The crystallizable, odorous constituent of the *Tonca bean*, also prepared synthetically. It melts at 67° C. (152.6° F.), only slightly soluble in water, readily in alcohol and ether. Coumarin is employed for the purpose of masking the odor of medicinal agents such as iodoform, etc.

**CUTAL.**

*Synonym:* Aluminum Boro-Tannico-Tartrate.

Obtained by pouring a mixture of five parts of an aqueous tannin solution (1:4) and 80 parts of an aqueous borax solution (1:19) into a solution of 3 parts of aluminum sulphate in 12 parts of water, stirring constantly. The resulting precipitate is filtered off, washed, spread on glass plates and dried at low temperature. This preparation is insoluble in water; hence, in order to render it soluble, 1 part of it is dissolved in 10 parts of water by means of 1.2 parts of tartaric acid; the solution evaporated to dryness at a low temperature yields a soluble aluminum boro-tannico-tartrate or cutal. This is recommended as an astringent antiseptic, either in dry form or in aqueous solution.

**CYSTINE.**  $C_{11}H_{14}N_2O$ .

An alkaloid obtained from the *Cytisus laburnum*. Forms an inodorous, deliquescent, white, crystalline mass, of bitter taste, readily soluble in alcohol and water, insoluble in ether; chiefly employed as a nitrate. Cystine, as regards its physiological action, stands between strychnia and curare, being used in paralytic migraine; also in cardiac diseases.

Dose 0.003 to 0.005 Gm. (1-21 to 1-12 grain).

DATURINE. See Hyoscyamine.

DELPHININ.

An alkaloid obtained from the seed of *Delphinium staphisagria*. Forms small crystals of a bitter taste, insoluble in water and soluble in alcohol and ether. Exerts a powerful action on the heart, like aconitin; employed in treatment of spasmodic asthma, dropsical affections and neuralgia, in doses of 0.01 to 0.02 Gm. (1-6 to 1-3 grain).

DERMATOL.  $C_6H_2(OH)_3COOBi(OH)_2$ .

*Synonyms*: Subgallate of Bismuth; Basic Gallate of Bismuth.

To a solution of 15 parts of crystallized bismuth trinitrate in 30 parts of glacial acetic acid diluted with about 200 parts of water, is added with constant stirring a warm solution of 5 parts of gallic acid in 250 parts of water. The yellow precipitate is washed until free from nitric acid, then dried on porous plates. Dermatol forms a bright yellow, inodorous and tasteless powder, insoluble in the usual solvents. It is an excellent dry antiseptic in all varieties of surgical practice. Internally in doses of 0.25 to 0.5 Gm. (4 to 8 grains) in treatment of diarrhoea.

DERMOL.

*Synonym*: Bismuth Chrysophanate.

This is described by Trojescu as an amorphous yellow-colored powder, insoluble in all of the usual solvents, consisting of a mixture of chrysarobin and bismuth hydroxide. It is probably intended to be used as an antiseptic application in various skin diseases.

DESOXY-ALIZARIN. See Anthrarobin.

DEXTRO-SACCHARIN.

This consists of a mixture of saccharin 1 part and glucose 2000 parts.

DIABETIN.  $C_6H_{12}O_6$ .

*Synonyms*: Lævulose; Fruit Sugar.

Fruit Sugar (*Fructose*) is found in most sweet fruits, together with an equal amount of grape sugar; it is formed, together with grape sugar, in the so-called *inversion* or decomposition, of cane sugar by boiling with acids; the mixture of the two is called *invert sugar*. This diabetin is prepared from invert sugar by mixing the latter with calcium-hydroxide, the liquid lime compound of dextrose is removed and the residual solid is the lime compound of lævulose; this latter calcium salt is decomposed with carbonic acid, liberating the lævulose. This is a colorless, odorless, crystalline powder, readily soluble in water and alcohol. Diabetin is recommended as a sweetening agent for diabetic patients.

DIACETANILID.  $C_6H_5N(C_2H_5O_2)_2$ .

The old method of preparation of this salt is by heating together phenyl mustard oil and acetic acid. It is now prepared by heating acetanilid with glacial acetic acid at  $200^\circ$  to  $250^\circ$  C. The reactions product is taken up by hot petroleum ether and crystallized, while the unaltered acetanilid remains behind undissolved. The physiological action of this compound is similar to, but stronger, than that of acetanilid.

DIAPHTHOL. See under Chinolin.

DIAPHTHERIN. See under Chinolin

DI-BROMO-GALLIC ACID. See Gallobromol.

DI-CHLORAL-ANTIPYRINE. See under Antipyrine.

DI-CHLORACETIC ACID.  $CHCl_2COOH$ .

This is obtained by the action of chlorine gas on glacial acetic acid. It forms a colorless, pungent fluid, of boiling-point  $190^\circ$  C. ( $374^\circ$  F.). Is employed as a cauterizing agent.

DI-CHLOR-METHANE. See Methylene Chloride.

DIETHYL ACETAL. See Acetal.

DI-ETHYL-SULPHON-DI-ETHYL-METHANE. See Tetronal.

DI-ETHYL-SULPHON-DI-METHYL-METHANE. See Sulphonal.

DI-ETHYL-SULPHON-METHYL-ETHYL-METHANE. See Trional.

DI-ETHYLENE-DIAMINE. See Piperazine.

DIGITALEIN. (Schmiedeberg.)

A glucosidal principle obtained from the leaves of the *Digitalis purpurea*. It constitutes a yellowish, amorphous powder which is soluble in water and alcohol. The properties and dose of this glucoside are similar to those of digitalin.

**DIGITALIN.** (Digitalinum.)

A glucoside obtained from the leaves of the *Digitalis purpurea*.

**DIGITALINUM CRYSTALLISATUM NATIVELLE.** Forms fine crystalline needles, which are almost insoluble in water and soluble in alcohol. It has been recommended in treatment of inflammation of the lungs, and also febleness of the heart's action. Dose 0.00065 to 0.001 Gm. (1-100 to 1-64 grain).

**DIGITALINUM VERUM KILLIANI.** (German.) ( $C_5H_8O_2$ )<sub>x</sub>. Occurs as a white amorphous powder, soluble in 1000 parts of water and in 100 parts of dilute alcohol. It melts at 217°C. (422.6°F.). This digitalin "verum" exerts the characteristic effects of digitalis leaves (Bohm and Pfaff), being administered in doses of 0.00025 Gm. (1-300 grain).

**DIGITOXIN.**  $C_{31}H_{52}O_7$ .

According to Schmieberg, digitoxin is the most active of the several glucosides which constitute commercial "digitalin," being essentially identical with "Nativelle's digitalin." Digitoxin forms white crystalline needles, which are insoluble in water, the dose being 0.00033 to 0.00065 Gm. (1-200 to 1 100 grain).

**DI-HYDRO-RESORCIN.**

This is prepared by the action of sodium amalgam on a solution of resorcin in boiling water, carbonic acid gas being passed through the solution during the reaction. The unconverted resorcin is removed by shaking the solution with ether, then after acidulating, the solution is shaken a second time with ether, which extracts the dihydroresorcin, which remains as a syrup-like liquid on the evaporation of the ether. It soon congeals to a solid mass on standing, which, by recrystallization, yields glossy prisms, which melt at 104° to 106° C. (219.2° to 222.8°F.), very soluble in water, alcohol and chloroform. Di-hydro resorcin is recommended as an antiseptic.

**DI-IODOFORM.**  $C_2I_2$ .

*Synonym:* Ethylene periodide.

This is obtained by the action of iodine on a solution of acetylene iodide in carbon disulphide. It forms bright yellow, inodorous, crystalline needles, which are insoluble in water, sparingly soluble in alcohol, and readily so in chloroform; melting at 192° C. (377.6° F.). Diiodoform contains 95.5% of iodine, and is recommended as a substitute for iodoform. Exposure to light causes its decomposition, hence it should be kept in a dark place.

**DI-IODO-SALICYLIC ACID.**  $C_6H_4I_2(OH)COOH$ .

This is obtained by the action of iodine and iodic acid on salicylic acid. It forms a white crystalline powder, of sweet taste, melting between 220° to 230° C. (428° to 446° F.), almost insoluble in cold water, slightly soluble in hot water and very soluble in alcohol and ether.

It is employed as an analgesic and antipyretic; dose 1.5 to 4. Gm. (24 to 60 grains) per day.

**DI-IODO-SALOL.** See under Salol.**DIMETHYL-ACETAL.**  $CH_3-CH(OCH_3)_2$ .

*Synonym:* Aethyliden-Di-Methyl-Ether.

This is obtained by the oxidation of a mixture of ethyl and methyl alcohols. It forms a colorless, ethereal liquid of sp. gr. 0.867, boiling at 64° C. (147.2° F.) Dimethyl-acetal is employed as an anæsthetic, either alone or mixed with half its volume of chloroform.

**DI-METHYL-ETHYL-CARBINOL.** See Amylene Hydrate.**DI-METHYL-KETONE.** See Acetone.**DI-METHYL-PIPERAZINE TARTRATE.** See under Piperazine.**DIOXY-ANTHRANOL.** See Anthrarobin.**DIPHThERIA ANTITOXINE.**

Behring's curative serum is the blood-serum of animals immunized by the injection of the diphtheria toxine.

All infectious diseases like diphtheria are produced by bacteria, which secrete very poisonous substances called "toxines" that eventually cause death. By the use of certain agents the action of these toxines may be counteracted, rendering the organism insensible to their poisonous effect. This insensibility or immunity may be acquired by a gradual habituation to a given poison. To Prof. Behring is due the credit of discovering that during this process of habituation an antitoxine is produced in the blood, which, when isolated and injected into the blood of a patient, effects a change in the susceptibility of the living organs to the action of the poison (toxines). The antitoxine is prepared as follows: A colony of diphtheria bacilli, after being

placed in a suitable medium and under favorable conditions, multiply with great rapidity, secreting at the same time their poison or toxins. After a few weeks, when sufficient of the toxins has formed, the bacilli are destroyed by means of carbolic acid and by filtering through porous plates of clay the dead bacilli are removed from the solution of toxins. Of this solution, small amounts are injected into the blood of a healthy horse, producing a mild attack of the disease; this procedure is then repeated for several months, the doses of toxine being steadily increased until the animal becomes habituated to the poison. Then a quantity of blood is withdrawn from the animal, and the serum or aqueous portion is separated from the red blood corpuscles; this serum constituting a light yellow liquid which contains the antitoxine of diphtheria. This serum is standardized by determining the quantity required for injection to neutralize a fatal dose of diphtheric poison in a guinea pig; the ratio between the quantity of antitoxine and the body weight of the animal furnishes a means of indicating in definite units the strength of the solution.

### DIPHThERICIDE.

Pastilles containing thymol, sodium-benzoate and saccharin. Used as prophylactic against diphtheria.

### DISINFECTIN.

This is made by treating 5 parts of "masut" (the residue of naphtha-distillation) with 1 part of concentrated sulphuric acid; the resulting sulphonated product is then treated with 5 parts of 10% soda solution. This forms a brown liquid which, when diluted with water, is used as a disinfectant.

### DISINFECTOL.

A mixture of hydrocarbons and crude cresols rendered soluble by the addition of alkali. It is a dark-brown liquid which gives a milky-like solution with water. It is employed as a disinfectant diluted with water.

DISPERMINE. See Piperazine.

DITHION. See under Dithiosalicylic Acids.

DITHIOSALICYLIC ACIDS. 
$$\begin{array}{c} \text{S-C}_6\text{H}_5 \text{ (OH) COOH.} \\ | \\ \text{S-C}_6\text{H}_5 \text{ (OH) COOH.} \end{array}$$

Of these acids nine isomers are possible, but only two of them have been introduced in medicine in the form of sodium and lithium salts, being distinguished as No. 1 and No. 2.

Salicylic acid and sulphuryl chloride, in molecular proportions, are heated together at 150° C., the resulting resinous like mass is dissolved in a solution of soda to which in turn a solution of sodium chloride is added resulting in the precipitation of sodium dithiosalicylate No. 1, while the sodium salt No. 2 remains in solution. The acids are liberated from their corresponding sodium salts by the addition of hydrochloric acid.

**SODIUM DITHIOSALICYLATE No. 1.** Forms a yellowish, amorphous, soluble powder, which is employed as an antiseptic in veterinary practice, either as a wash (3 to 5%) or mixed with talcum or starch (5 to 50%) as a dusting powder.

**SODIUM DITHIOSALICYLATE No. 2.** Forms a gray, amorphous, hygroscopic and soluble powder, which is employed internally in treatment of muscular rheumatism and rheumatic fever; in antiseptic activity it is superior to sodium salicylate. Dose is 0.2 to 1 Gm. (3 to 15 grains).

**DITHION.** Is a mixture of the two sodium salts of dithiosalicylic acid. It is employed as an antiseptic wash (5 to 10%) and dusting-powder in veterinary practice.

**THIOFORM.** A basic bismuth salt of dithiosalicylic acid, introduced as a substitute for iodoform. It is prepared by adding a solution of sodium dithiosalicylate (1 or 2) to a solution of bismuth trinitrate, the latter salt being first dissolved in a little glycerin before diluting with water. The resulting precipitate, after washing and drying, constitutes a voluminous, yellow, insoluble, inodorous powder.

DI-THYMOL-IODIDE. See Aristol.

DIURETIN.  $\text{C}_7\text{H}_7\text{N}_4\text{O}_2\text{Na} + \text{C}_6\text{H}_4 \text{ (OH) COONa}$ .

*Synonym:* Sodio-Theobromine Salicylate.

The active constituent of this body is theobromine, an alkaloid which is closely related to caffeine. Diuretin is prepared by mixing aqueous solutions of sodio-theobromine and sodium salicylate, in molecular proportions, and evaporating to dryness. It constitutes a white amorphous powder, very soluble in water, decomposed by acid solutions. It is employed as a diuretic in doses of 0.5 to 1.5 Gm. (8 to 23 grains) for children, and 1.5 to 3 Gm. (23 to 45 grains) for adults.

**UROPHERIN (Lithium-Diuretin).** Is analogous to diuretin, being the corresponding lithio-theobromine-salicylate. It is a white powder, soluble in 5 parts of water, being employed as a diuretic in doses of 1 Gm. (15.5 grains).



**DUBOISINE.**  $C_{17}H_{23}NO_3$ .

This alkaloid, obtained from the leaves of *Duboisia myoporoides* is, according to Ladenburg, chemically identical with hyoscin; according to others identical with hyosyamin. It is employed as a mydriatic, acting more rapidly and being less irritating than atropine; also employed as a hypnotic and sedative in treatment of hysteria and epilepsy. The *sulphate* occurs in hygroscopic crystals; being used in aqueous solution (0.065 Gm. to 30 Cc.) for the eye. The dose of the alkaloid is 0.0008 to 0.002 Gm. (1-80 to 1-30 grain).

**DULCIN.**  $CO(NH_2)NH, C_6H_4OC_2H_5$ .

*Synonyms*; Sacrol; Valzin; P-Phenetolcarbamid.

By the action of para-phenetidin on phosgene, dissolved in toluol, phenetidin-carbon-oxychloride is formed; this product on treatment with ammonia yields dulcin. This sweetening agent forms colorless crystals, which melt at  $173^{\circ}C$  ( $343.4^{\circ}F$ .) soluble in 800 parts of water at  $15^{\circ}C$ . ( $59^{\circ}F$ .), and 55 parts of water at  $100^{\circ}C$ . ( $212^{\circ}F$ .); it is soluble in 25 parts of alcohol, also in ether. Its sweetening power is about 200 times that of sugar. Dulcin is employed as a sweetening agent for the food of diabetics.

**EPHEDRINE.**  $C_{10}H_{15}ON$ .

An alkaloid obtained from the leaves of the *Ephedra vulgaris*. The hydrochloride of this base, which forms colorless soluble crystals, is recommended as a mydriatic to replace homatropine. Instillation of 1 or 2 drops of a 10% solution into the eye produces marked dilation of the pupil, which lasts from 5 to 20 hours; for daily application 2 to 3 drops of a 1% solution is sufficient.

**ERGOTININE.** (Tanret).

This is a feeble basic principle obtained from ergot, of which, according to Tanret, it is the active principle. It occurs in colorless needles, which, on exposure to light, rapidly darken. According to Kobert, this principle, when pure, is inert.

**ERYTHROPHLEINE.**

This is an alkaloid obtained from the Sassy bark (*Erythrophleum guineense*). The hydrochloride of this base forms colorless crystals which are soluble in water. This alkaloid has been recommended as a local anæsthetic, internally as a cardiac stimulant, it is intensely poisonous.

**ESERIDINE.**  $C_{15}H_{23}N_3O_3$ .

This is one of the alkaloids which occurs in the calabar bean, along with physostigmine (eserine). Eseridine forms colorless crystals, melting at  $132^{\circ}C$ . ( $269.6^{\circ}F$ .) Its physiological action is similar to that of eserine, being, however, six times weaker in effect. It has been recommended as a purgative in veterinary practice.

**ETHOXY-CAFFEINE.** See under Caffeine.**ETHYL BROMIDE.**  $C_2H_5Br$ .

*Synonyms*; Æther bromatus; Brom-ethyl; Mono-brom-ethane.

Ethyl bromide is obtained by the distillation of a mixture of ethyl-alcohol, sulphuric acid and potassium bromide. It forms a colorless, limpid, inflammable liquid, of a sweet chloroformic odor. It boils between  $35^{\circ}$  and  $40^{\circ}C$ . ( $100.4^{\circ}$ — $104^{\circ}F$ .); its specific gravity lies between 1.445 and 1.450. It is not miscible with water, but freely with alcohol, ether, chloroform and the oils.

This preparation should be cautiously preserved, for the action of light and air causes its decomposition into bromine and hydro-bromic acid, which is evident by its brown color, acid reaction and pungent odor; in this condition it should not be dispensed.

Ethyl bromide is employed as an anæsthetic in minor surgical operations. Narcosis is produced in from  $\frac{1}{2}$  to 1 minute, but lasts only a few minutes, unless fresh quantities are administered.

**ETHYL CARBAMATE.** See Urethane.**ETHYL CHLORIDE.**  $C_2H_5Cl$ .

*Synonyms*; Chlor-ethyl; Mono-chlor-ethane; Chelen.

Ethyl chloride is produced by the action of dry hydrochloric acid gas on absolute alcohol. At ordinary temperature it constitutes a gas, which, is readily condensed to a liquid which boils at  $10^{\circ}C$ . ( $50^{\circ}F$ .) Because of the intense cold (about  $35^{\circ}C$ .) produced by its evaporation, it is employed as a local anæsthetic. This liquid appears in commerce in small hermetically sealed tubes, terminated by a capillary point. When used, the point of the capillary is broken off, and the tube held in the hand, the warmth of which is sufficient to expel the liquid through the small orifice in a stream; this is directed to the surface where it is desired to produce local anæsthesia.

Because of its great inflammability, operations should not be performed in the proximity of a gas flame.

ETHYL IODIDE.  $C_2H_5I$ .

*Synonyms*: Æther Iodatus; Ethyl Iodide; Mono-iod-ethane.

Ethyl iodide is prepared by the action of iodine on a well-cooled mixture of amorphous phosphorus and absolute alcohol. This forms a colorless liquid which boils at  $71^\circ C.$  ( $160^\circ F.$ ); its specific gravity being 1.97.

Employed as an inhalation in treatment of bronchitis and dyspnoea.

## ETHYL KAIRIN. See Kairin.

## ETHYL NATRIUM. See under Sodium Salts.

## ETHYL PHENACETINE. See under Phenacetine.

## ETHYL URETHANE. See Urethane.

ETHYLENE BROMIDE.  $C_2H_4Br_2$ .

*Synonyms*: Æthylenum Bromatum; Brom-ethylene.

Ethylene bromide is prepared by passing ethylene gas through bromine. It forms a colorless, highly refractive liquid of chloroformic odor; its boiling point is  $131.5^\circ C.$  ( $269^\circ F.$ ) and specific gravity 2.170. It is insoluble in water, but miscible with alcohol and the fatty oils.

This ethylene bromide should not be confused with ethyl bromide, as the former produces marked toxic effects when inhaled.

Ethylene bromide is employed as an anti-epilepticum, in doses of 0.1 to 0.3 Gm. (1.5 to 5 grains) or 6 to 12 minims, in form of an emulsion.

ETHYLENE CHLORIDE.  $C_2H_4Cl_2$ .

*Synonyms*: Æthylenum Chloratum; Æthylen Chlorid; Chloræthylen; Elaylum Chloratum; Liquor Hollandicus.

Ethylene chloride is produced by the action of chlorine on ethylene. This consists of a colorless ethereal liquid, of boiling point of  $85^\circ C.$  ( $185^\circ F.$ ) and specific gravity of 1.254

It is employed as local application to relieve rheumatic or neuralgic pains.

## ETHYLENE-DIAMINE TRICRESOL.

A mixture of 10 parts each of ethylenediamin and tricresol, dissolved in 500 parts of distilled water. It appears as a clear, colorless liquid, becoming slightly yellow on exposure to the air. It has an alkaline reaction, and metallic instruments are not attacked by it when in dilute solution.

## ETHYLENE-IMINE. See Piperazine.

ETHYLIDEN CHLORIDE.  $CH_3CHCl_2$ .

*Synonyms*: Æthylidenum Chloratum; Chlorethyliden.

Ethyliden chloride is prepared by the action of chlorine on ethyl chloride. It constitutes a colorless ethereal liquid, of an agreeable fruity odor, boiling point being  $57^\circ C.$  ( $134.6^\circ F.$ ) and specific gravity 1.18.

It is employed as an anæsthetic in minor operations, producing rapid narcosis of short duration.

## ETHYLIDEN-DI-ETHYL ETHER. See Acetal.

## ETHYLIDEN-DI-METHYL-ETHER. See Dimethylacetol.

## EUCALYPTOL.

This antiseptic is obtained by the treatment of eucalyptus oil with hydrochloric acid, producing eucalyptene bichloride, in colorless, scaly crystals, with an odor resembling camphor, and almost tasteless. It is insoluble in water, soluble in ether, chloroform and alcohol, being decomposed by the latter. The dose for adults in capsules is 1 to 1.5 Gm. (15 to 24 grains).

EUCALYPTOL.  $C_{10}H_{18}O$ .

*Synonyms*: Cineol; Cajeputol

Eucalyptol is an oxygenated body obtained from the volatile oil of various species of *Eucalyptus*. It is identical with *cajeputol* of oil of cajeput, and *cineol* of oil of wormseed. Eucalyptol forms a colorless liquid of camphoraceous odor, boiling at  $176^\circ C.$  ( $348.8^\circ F.$ ); sp. gr. 0.930. It is insoluble in water, but miscible with alcohol, ether and the fatty oils. Eucalyptol, being the active constituent of oil of eucalyptus, is employed in all cases where the latter is applicable, that is as an antiseptic, rubefacient, etc.; it is an effective agent in lung and bronchial affections, being introduced as a spray and inhalation. Its internal dose is 5 drops in capsule or as emulsion.

## EUCALYPTO-RESORCIN.

This compound is obtained by warming together molecular quantities of eucalyptol and resorcin; the resulting product is recrystallized from alcohol. It forms a white crystalline powder, which is soluble in alcohol and ether; insoluble in water. Eucalypto-resorcin is an antiseptic, employed for inhalation (in alcoholic solution) in treatment of phthisis.

EUGENOL.  $C_6H_5 \cdot (C_2H_5) (O \cdot CH_3) (OH)$ .

This is a phenol, which occurs in various volatile oils, particularly those of cloves (80 to 90%), allspice, cinnamon, sassafras and bay. Oil of clove is treated with an excess of liquor sodæ, then shaken with ether to remove the terpenes, the aqueous solution of sodium eugenol is then decomposed by the addition of acid, and the eugenol separates as an oily fluid. It is an aromatic, colorless, oily liquid, which boils at  $246^\circ C$ . ( $474.8^\circ F$ .); when exposed to the air it rapidly turns brown. Readily soluble in alcohol, almost insoluble in water; it unites with alkalis, forming soluble salts. Eugenol is a powerful antiseptic, being employed in dental surgery. It has also been recommended in treatment of tuberculosis in doses of 1 to 2 Gm. (15 to 30 grains).

**BENZOYL-EUGENOL.** Is prepared by the action of benzoyl chloride on eugenol-sodium, occurs in colorless, inodorous crystals, which melt at  $70.5^\circ C$ . ( $159^\circ F$ .); insoluble in water, soluble in alcohol, ether and chloroform. This compound is recommended in place of Eugenol.

**CINNAMYL-EUGENOL.** Is prepared by interaction between cinnamyl-chloride and eugenol sodium; it forms inodorous, colorless crystalline needles, which melt at  $90^\circ$  to  $91^\circ C$ . ( $194^\circ$  to  $195.8^\circ F$ .); insoluble in water, soluble in alcohol, ether and chloroform. This compound is likewise recommended for administering in place of Eugenol.

**EUGENOL-ACETAMID.** Is prepared by the interaction between eugenol-sodium and mono-chloroacetic acid, the resulting eugenol acetic acid is converted into the amide by heating with ammonia. From water it crystallizes in shining plates, from alcohol in fine needles, which melt at  $110^\circ C$ . ( $230^\circ F$ .). It is recommended as a local anæsthetic, likewise as an antiseptic in treatment of wounds.

**iodo-EUGENOL.** Is obtained by the action of iodine on eugenol-sodium. It forms a yellowish-colored, inodorous, insoluble powder, which melts at  $150^\circ C$ . ( $302^\circ F$ .). Iodo-Eugenol is employed as an antiseptic.

**EUGENOL-BENZOATE.** See under Eugenol.

**EUGENOL-CINNAMATE.** See under Eugenol.

**EULYPTOL.** See Ulyptol.

## EUONYMIN.

A glucoside obtained from the bark of the root of the Wahoo (*Euonymus atropurpureus*). It forms a brownish-colored powder of very bitter taste, slightly soluble in water and soluble in alcohol and ether. Its properties are purgative. Dose 0.03 to 0.2 Gm. ( $\frac{1}{2}$  to 3 grains).

EUPHORIN.  $C_6H_5NH \cdot CO \cdot OC_2H_5$ .

*Synonym:* Phenyl-Urethane.

The esters of carbamic acid  $CO < \begin{matrix} NH_2 \\ OH \end{matrix}$  are called *Urethanes*, euphorin being a phenyl-ester. It is obtained by the interaction between aniline and mono-chloroformic ethyl-ester, forming a colorless crystalline powder, melting at  $49^\circ$  to  $50^\circ C$ . ( $120.2$  to  $122^\circ F$ .), slightly soluble in cold, more readily in hot water; soluble in alcohol, ether and hydroalcoholic mixtures. Euphorin is employed as an antipyretic, antirheumatic and analgesic, in doses of 0.13 to 0.5 Gm. (2 to 8 grains); as an antiseptic it is used in the form of a dusting-powder in the treatment of ulcers, skin diseases, etc.

EUROPHEN.  $C_4H_9(OCH_3)C_6H_3-C_6H_2, C_4H_9(CH_3)OI$ .

*Synonym:* Isobutyl-Ortho-Cresol-Iodide.

The method of preparation is analogous to that employed in the manufacture of aristol, in which a solution of isobutyl-ortho-cresol in dilute alkali is precipitated by a solution of iodine in potassium iodide. Europhen forms a yellowish, amorphous powder, of aromatic odor, insoluble in water; easily soluble in alcohol, ether and the fatty oils. It yields iodine to metallic salts. It should be preserved in a dry place, away from the action of light; water and alkalis decompose it. Europhen is employed as an antiseptic, being applied either as a dusting-powder or as a 5 to 10% ointment; for subcutaneous injection a 3 to 5% solution in olive oil is used.

EXALGINE.  $C_6H_5N(CH_3) \cdot (CH_3CO)$ .

*Synonym:* Methyl-Acetanilide.

This compound, a methylated acetanilide, is prepared by the interaction between

acetyl-chloride and monomethyl-aniline. It forms acicular needles, which are difficultly soluble in cold water and readily in alcohol and diluted alcohol, melting at 100° C. (212° F.) Exalgine is an antineuralgic, being given in doses of 0.065 to 0.2 Gm. (1 to 3 grains).

#### FAREOL.

A proprietary anodyne and antipyretic.

#### FERRATIN.

Natural ferratin, a compound of iron found in the liver, may be obtained by extracting the liver of the hog with water; artificially by a patented process in which a solution of egg albumen, iron tartrate, sodium tartrate and hydrate are heated together several hours at 90° C.; the excess of alkali then neutralized with tartaric acid, ammonia added and again heated several hours at 90° C.; when cold, the iron albuminate is precipitated with tartaric acid. Ferratin forms a reddish brown inodorous and tasteless powder, insoluble in water or dilute acids, but soluble in water, possessing a slight alkaline reaction. The preparation contains about 7% of iron. The commercial article appears in two forms, one being insoluble, as described above, and the other a soluble sodium compound. Ferratin is readily absorbed in the organism without causing the slightest digestive disturbances. Dose 0.5 Gm. (8 grains), children half this dose.

#### FERROPYRIN. $(C_{11}H_{12}N_2O)_3Fe_2Cl_6$ .

A compound of three molecules of antipyrin and one molecule of ferric chloride. This compound possesses the combined valuable properties of both its constituents, hence may be employed in the treatment of anaemia, neuralgia, etc. Ferropyrin appears as an impalpable, orange-red colored powder, containing 64% of antipyrin, 12% of iron, and 24% of chlorine. Soluble in 5 parts of water at 15° C., and only 9 parts at 10° C., hence on boiling a cold saturated solution ferropyrin separates, and in the form of ruby-red scales, which melt between 22.° and 225° C. Very soluble in cold methyl-alcohol, from which it separates in orange-red shining scales; also very soluble in alcohol and insoluble in ether. The addition of alkalies or alkali bicarbonates to its aqueous solution causes the precipitation of ferric hydrate.

#### FERRUM ALBUMINATUM. See Iron Albuminate.

#### FERRUM OXYDATUM SACCHARATUM SOLUBILE. See Iron Saccharated [Oxide].

#### FERRUM PEPTONATUM. See Iron Peptonate.

#### FILICIC ACID. (Amorphous). $C_{35}H_{42}O_{13}$ .

An amorphous principle obtained from the rhizome of the Male Fern (*Aspidium filix-mas*). This forms a tasteless white powder, which is soluble in alcohol and the fatty oils, melts at 125° C. (257° F.) The anthelmintic properties of male fern extract are ascribed to this principle, which is given in doses of 0.5 to 1 Gm. (8 to 15 grains). If absorbed into the system, amorphous filicic acid is toxic, hence it should not be administered with the fatty oils. The crystalline filicic acid is absolutely inert. (Poulsen).

#### FLUORESCEIN, or (Resorcin-Phtalein). $C_{20}H_{12}O_5.H_2O$ .

Phthalic acid anhydride (75 p.) is fused with resorcin (100 p.), the mass well washed with hot water and crystallized from alcohol. Fluorescein forms a yellowish-red, crystalline powder, insoluble in water, uniting with alkalies to form soluble salts. A 2% alkaline (Na HCO<sub>3</sub>) solution is employed in diagnosis of cornea! lesions, and detection of minute foreign bodies imbedded in that tissue. Those portions of the cornea which are devoid of their epithelium are colored green, while foreign bodies are surrounded by a green ring. (Straub.)

#### FORMALIN. $H.CO.H+xH_2O$ .

*Synonyms:* Formic Aldehyde; Formol.

This is a concentrated (40%) aqueous solution of formic aldehyde, the latter being obtained by passing the vapors of methyl alcohol over glowing coke or platinum spirals. This solution possesses a pungent odor and neutral reaction, its sp. gr. being from 1.080 to 1.088. Formic aldehyde is a most powerful antiseptic, its solution and vapors being devoid of any deleterious effect upon tissues or objects; a 1 to 2% solution is sufficiently strong for all purposes.

#### FORMANILIDE. $C_6H_5NH.CO.H$ .

This is obtained by digesting aniline with formic acid, or by rapidly heating it with oxalic acid. It forms colorless prismatic needles, melting at 46° C. (115° F.), readily soluble in water, alcohol, glycerin and the oils. Formanilide is employed as an antipyretic and analgesic in doses of about 0.12 to 0.3 Gm. (2 to 5 grains). When applied to the mucous membrane in powder form, or used in the form of a subcutaneous injection (1 Cc. of a 3% solution), it acts as a local anæsthetic.

FORMIC ALDEHYDE. See Formalin.

FORMOL. See Formalin.

FORMYL CHLORIDE. See Chloroform.

FORMYL-PHENACETINE. See under Phenacetine.

FORMYL TRIBROMIDE. See Bromoform.

FORMYL TRIIODIDE. See Iodoform.

FOSSILIN.

A name given to a petroleum product similar to petrolatum, vaselin, etc.

FRAXININ.

*Synonym:* Mannite.

FRUIT-SUGAR. See Diabetin.

GALLABROMOL. See Gallobromol.

GALLACETOPHENONE,  $\text{CH}_3\text{-CO-C}_6\text{H}_2(\text{OH})_3$ .

*Synonyms:* Alizarin-Yellow C.; Methyl-keto-trioxybenzene; Tri-oxy-aceto-phenon.

This derivative of pyrogallol is known commercially under the name of "alizarin-yellow C." It is prepared by interaction between pyrogallol, acetic acid and zinc chloride at  $150^\circ\text{C}$ . ( $302^\circ\text{F}$ .) It forms a pale yellow powder, almost insoluble in cold water, readily soluble in hot water, alcohol, ether and glycerin. Gallacetophenone is employed in dermatology (10% ointment) as a substitute for pyrogallol, which frequently gives rise to toxic symptoms.

GALLANOL.  $\text{C}_6\text{H}_5\text{NH.CO.C}_6\text{H}_2(\text{OH})_3$ .

*Synonyms:* Gallic Acid Anilide; Gallinol.

This compound, the anilide of gallic acid, is obtained by boiling tannin with aniline. It is a colorless, crystalline solid, with bitter taste, soluble in water, alcohol and ether; possessing marked astringent properties. Gallanol is employed in skin diseases in place of chrysophanic acid and pyrogallol, being less irritating and without poisonous properties. The strength of the ointment varies from 3 to 20%; in some instances it is used as a dusting-powder when mixed with French chalk.

GALLIC ACID ANILIDE. See Gallanol.

GALLINOL. See Gallanol.

GALLOBROMOL.  $\text{C}_6\text{Br}_2(\text{OH})_3\text{COOH}$ .

*Synonyms:* Di-bromo-gallic acid; Gallabromol.

This compound, obtained by the action of bromine on gallic acid, occurs in fine white needles, almost insoluble in cold, but readily soluble in hot water, also in alcohol and ether. It is used in neurasthenia and similar complaints as a sedative in place of the alkaline bromides; the dose being 1 to 10 Gm. (15 to 150 grains).

GELATOL.

An ointment base composed of a mixture of oil, glycerin, gelatin and water.

GLACIALIN.

A mixture of borax, boric acid and sugar.

GLONOLIN. Nitroglycerin (see U. S. P.).

GLUCUSIMIDE. See Saccharin.

GLUSIDE. See Saccharin.

GLYCERIN-PHOSPHORIC ACID.

This compound, a glycerin ester of phosphoric acid, is prepared by interaction of phosphoric acid and glycerin in the presence of dehydrating agents. It is a yellowish inodorous, oily liquid, of acid taste, soluble in water and alcohol; its calcium salt being chiefly employed. Used subcutaneously in doses of about 0.25 Gm. (3.8 grains) to increase the amount of phosphorus in the organism of neurasthenics and those afflicted with nervous disorders.

GLYCOLINE.

A purified petroleum oil, for use in atomizers.

## GLYCOZONE.

A thick syrupy liquid, which is made by saturating glycerin with ozone. It is administered in teaspoonful doses, diluted with water, in treatment of dyspepsia, etc.

GUAIACOL.  $C_6H_4(OCH_3)(OH)$  (1:2).

*Synonyms:* Methyl-Pyro-Catechol; Methyl-Pyrocatechin.

Beechwood tar creosote, which consists of a mixture of guaiacol, cresols and creosol, is fractionated, collecting that portion which comes over between  $200^\circ$  and  $205^\circ$  C.; this product on treatment with alcoholic potassium-hydrate, yields potassium-guaiacol, which, when decomposed with dilute acids, liberates guaiacol. When pure, guaiacol forms a crystalline solid, which melts at  $28.5^\circ$  C. ( $83.3^\circ$  F.), and boils at  $205.1^\circ$  C. ( $401.1^\circ$  F.); purified liquid creosote is a colorless refractive liquid, of agreeable aromatic odor, having a specific gravity of about 1.143; soluble in 85 parts of water, readily in all proportions in alcohol and ether. Commercial guaiacol (generally of synthetic origin), does not contain more than 9% of pure guaiacol, its gravity is lower and color darkens on exposure to air. Guaiacol is a valuable remedy in phthisis, being given in doses of 1 to 2 minims, which may be increased to 20 minims or more. It readily combines with acid radicals forming crystalline compounds, among which are:

**CREOSOTE CARBONATE** (Creosotol). This compound is analogous to guaiacol carbonate, but is prepared directly from beech-wood creosote, instead of guaiacol. It forms a thick, brownish, inodorous oil, insoluble in water. Creosotol is preferred to creosote for internal administration since it is readily absorbed and free from all disturbing symptoms which accompany creosote itself. Dose is 3 to 15 minims.

**GUAIACOL BENZOATE.** See Benzosol.

**GUAIACOL BINIODIDE.** Is prepared by precipitating an aqueous solution of sodium guaiacol with a solution of iodine in potassium iodide. It forms a reddish-brown powder, possessing an odor of iodine, soluble in alcohol and the fatty oils. Nothing definite is known as to its dose.

**GUAIACOL CARBONATE**,  $[CO_3(C_6H_4OCH_3)_2]$ . The di-guaiacol ester of carbonic acid, is formed by the action of phosgene gas on guaiacol sodium. This forms an inodorous, neutral, crystalline powder, (containing 91.5% of guaiacol), insoluble in water, slightly so in alcohol, glycerin and the oils; melts at  $65^\circ$  C. ( $149^\circ$  F.). The irritation produced by guaiacol, as well as creosote, has added to the popularity of this salt, which does not disturb the digestive functions, for, being insoluble, it passes unchanged through the stomach into the intestines, where it is split up. The dose is 0.3 to 0.5 Gm. (5 to 8 grains), gradually increasing to 5 Gm. (75 grains) daily.

**GUAIACOL CARBONIC ACID** ( $C_6H_3(OH)(OCH_3)COOH+2H_2O$ ). Is prepared by passing carbonic-acid over sodium-guaiacol heated to  $100^\circ$  C. ( $212^\circ$  F.), the resulting product on treatment with acids yields the free acid. This forms a white, crystalline, inodorous powder of bitter taste; slightly soluble in water, readily in alcohol and ether, melting at  $150^\circ$  C. ( $302^\circ$  F.). Guaiacol carbonic acid and its alkali salts have been recommended as antiseptics and antirheumatics. This compound should not be confused with Guaiacol Carbonate.

**GUAIACOL CINNAMATE** or **STYRACOL**,  $C_6H_5.CH=CH.CO_2C_6H_4.OCH_3$ . Is the cinnamic ester of guaiacol. It is prepared by warming a mixture of guaiacol and cinnamyl chloride in molecular proportions. This compound forms colorless needles which melt at  $130^\circ$  C. ( $266^\circ$  F.), insoluble in water, readily soluble in alcohol. Styracol is employed in catarrhal affections of the digestive organs, also in the treatment of phthisis.

**GUAIACOL SALICYLATE** or **GUAIACOL-SALOL**,  $C_6H_4(OH)COO-C_6H_4(OCH_3)$ . A compound analogous to salol, is prepared by the action of phosphorus oxychloride on a mixture of guaiacol sodium and sodium salicylate. It forms a white, inodorous, tasteless, crystalline powder, melting at  $65^\circ$  C. ( $149^\circ$  F.), almost insoluble in water, soluble in alcohol and ether. It is administered to phthisical patients to aid digestion, also as an intestinal antiseptic in doses of 1 Gm. (15 grains).

**GUAIACOL PHOSPHATE**,  $PO(C_6H_4OCH_3O)_3$ . This salt is prepared by H. Dubois by making a solution of guaiacol in soda lye, cooling, and then adding phosphorus oxychloride, drop by drop, in somewhat more than the theoretical quantity. After standing five or six hours an oily layer of the phosphate collects on the bottom of the vessel, which soon crystallizes, and is then purified by repeated washing with alcohol. It crystallizes in hard colorless tables, melting at  $98^\circ$ . It is insoluble in water, alcohol and petroleum ether, and easily soluble in chloroform and acetone.

**GUAIACOL SUCCINATE.** This new ester of guaiacol may be prepared either by treating a mixture of guaiacol and succinic acid with a definite quantity of phosphorus oxychloride, or, preferably, by treating an aqueous soda solution of guaiacol, cooling it the while with succinyl chloride. It has the formula  $C_4H_4O_4(C_6H_4OCH_3)_2$ . It crystallizes in fine needles with a silken luster, melting at  $136^\circ$  C. It is insoluble in water, slightly soluble in ether and alcohol, and readily so in chloroform.

**OLEO-CREOSOTE**, the oleic ester of creosote, prepared by combining creosote with oleic acid by means of phosphorus trichloride. This is a yellow, oily liquid (35% creosote), insoluble in water and nearly so in alcohol, soluble in ether and in oils. It is used as an antiphthisic in doses of 15 to 16 minims.

**GUARANIN.** See Caffeine.

**GYMNETIC ACID.**  $C_3H_{55}O_{12}$ .

The active principle prepared from the leaves of *Gymnema silvestre*.

It forms a greenish white powder, of an acid astringent taste, sparingly soluble in water, easily in alcohol. It produces a temporary ageusia to sweet and bitter tastes. Before partaking of bitter medicines, the mouth is rinsed out with a 12 per cent hydro-alcoholic solution.

**HÆMALBUMIN.**

A predigested iron albuminate, one gramme containing all the constituents which are found in 6 grammes of fresh healthy blood, with exception of fibrin and such products as urea, kreatinin, etc. Also 1 Gm. of Hæmalbumin, aside from the readiness with which it is absorbed, is equal to 25 Gm. of Liquor Ferri Albuminati. For infants, one gramme dissolved in hot water, with sufficient sugar, is used. For adults the same quantity may be given in dry powder form several times daily.

**HÆMATOGEN.**

A yellowish powder, containing 0.7% of iron, or a liquid obtained by adding ferric citrate and acetic acid to an alkaline solution of albumen. This is employed in treatment of rachitis and scrofulous conditions, also as a tonic for anæmics. Dose of the liquid is 1 to 4 teaspoonfuls, according to age.

**HÆMOGALLOL.**

A ferruginous blood preparation, obtained by oxidizing the hæmoglobin of the blood (defibrinated blood) by the action of pyrogallol, thus furnishing a compound which is easily assimilated and supplies those constituents of the blood which are found lacking in chlorosis and anæmia. It forms a red-brown powder, insoluble and tasteless, being given in doses of 0.2 to 0.5 Gm. (3 to 8 grains).

**HÆMOL.**

A preparation closely allied to hæmogallol, being obtained in the same manner, except that zinc-dust is employed as reducing agent. This is a dark brown insoluble powder, administered as a tonic in doses of 0.1 to 0.5 Gm. (1½ to 8 grains).

**HELENIN.**  $C_6H_8O$ . See Alantol.

A stearoptene obtained from the root of *Inula Helenium* (Elecampane Root) by exhaustion with alcohol and precipitating the resulting extract by pouring into water. It forms white, acicular crystals, which melt at 110° C. (23° F.), insoluble in water, readily soluble in hot alcohol, also in ether and the oils. Helenin is employed in treatment of whooping cough, bronchitis and tubercular coughs in doses of 0.01 Gm. (1-6 grain)

**HELIOTROPIN.** See Piperonal.

**HOMATROPINE.**  $C_{16}H_{21}NO_3$ .

*Synonym* : Oxy-toluol-tropine.

An artificial alkaloid obtained from tropine mandelate, prepared synthetically by Ladenburg from tropic acid and tropin, the two derivatives of atropine. This forms colorless, very hygroscopic crystals, slightly soluble in water. Its action is like that of atropine, but less persistent and weaker, causing, when applied to the eye, rapid dilation of the pupil, which passes off sooner than that of atropine. Also given internally in treatment of the night-sweats of phthisis. The maximal internal dose is 0.001 Gm. (1-64 grain); as application, in 1 per cent. solution. The salts of the alkaloid are preferred.

**HOMATROPINE HYDROBROMATE**,  $(C_{16}H_{21}NO_3 \cdot H Br)$ , because of its ready solubility and non-hygroscopic nature, is preferred to the alkaloid. The dose and properties are the same. The other salts of homatropine are the *hydrochlorate*, *sulphate* and *sulphate*.

**HYDRACETINE.**  $C_6H_5NH-NH-CH_3CO$ .

*Synonyms* : Pyrodine ; Acetyl-phenyl-hydrazine.

This compound may be looked upon as hydrazine  $H_2N-NH_2$ , in which a hydrogen in each of the  $NH_2$  groups is replaced by a monovalent radical, one being a phenyl ( $C_6H_5$ ), the other being an acetyl ( $CH_3CO$ ) group, or it may be considered as being the

acetyl derivative of phenyl-hydrazine. It is obtained by heating together acetic anhydride and phenyl hydrazine. Hydracetine occurs in colorless, inodorous and tasteless crystals, which melt at 128.5° C. (263.5° F.), soluble in 50 parts of water and readily so in alcohol. Its properties are those of an antipyretic and antirheumatic, in doses of 0.05 to 0.1 Gm. (3/5 to 1 1/5 grains). Care should be taken in administering this remedy, because of its powerful and toxic properties.

#### HYDRASTINE. $C_{21}H_{21}NO_6$ .

An alkaloid obtained from the rhizome of *Hydrastis canadensis*. It occurs in yellowish white crystals which melt at 132° C. (269.6° F.), of intensely bitter taste, insoluble in water, readily soluble in alcohol and ether. Hydrastine is employed in metrorrhagia, also as a tonic and antiperiodic in doses of 0.015 to 0.03 Gm. (1/4 to 1/2 grain). It is not used externally, because of its insolubility.

**HYDRASTINE HYDROCHLORATE** forms a pale yellow, crystalline powder, of very bitter taste, readily soluble in water and alcohol. It is employed in gonorrhœa, conjunctivitis, leucorrhœa, etc., externally in various dermal affections in a one per cent ointment or lotion.

#### HYDRASTININE. $C_{11}H_{11}NO_2$ .

This is obtained as the oxidation product of hydrastine by nitric acid. It forms acicular crystals, melting at 116° to 117° C. (240.8° to 242.6° F.), insoluble in water, readily soluble in alcohol and ether.

**HYDRASTININE HYDROCHLORIDE** is usually employed in medicine because of its ready solubility. It occurs in yellow crystals which melt at 205° C. (401° F.). It is employed as a uterine hæmostatic, also in dysmenorrhœa, metrorrhagia, etc., in doses of 0.025 Gm. (3/8 grain). As a subcutaneous injection 1/2 to 1 Cc. of a 10% aqueous solution once daily.

#### HYDROCHINON. See Hydroquinone.

#### HYDROCINNAMIC ACID. See Beta-phenyl-propionic acid.

#### HYDRONAPHTHOL.

An antiseptic and disinfectant, said to be obtained from beta-naphthol by reduction, in which a hydrogen atom is replaced by the hydroxyl group. Usually given in keratin or salol-coated pills containing 0.1 to 0.2 Gm. (1 1/2 to 3 grains). For external use, in a one per cent. solution.

#### HYDROQUINONE. $C_6H_4(OH)_2$ (1:4).

*Synonyms:* Hydrochinon; Para-dioxybenzol.

This body is an isomer of resorcin, being prepared by the oxidation of aniline with chromic acid mixture. It forms colorless, hexagonal prisms, which melt at 169° C. (336.2° F.), difficultly soluble in cold water, readily so in hot water, in alcohol and in ether. Hydroquinone is used as an antiferment, antiseptic and antipyretic; as antipyretic its dose is 1 Gm. (15 grains); as an injection or wash in 10% solution.

Hydroquinone is largely employed as a photographic developer.

#### HYDROXYLAMINE HYDROCHLORIDE. $NH_2OH.HCl$

*Synonym:* Oxy-ammonium chloride.

Hydroxylamine may be regarded as ammonia,  $NH_3$ , in which a hydrogen atom is replaced by the hydroxyl group OH. This base is obtained by interaction between sulphurous and nitrous acids at low temperature. Hydroxylamine hydrochlorate forms colorless, hygroscopic, crystalline plates, readily soluble in water, glycerin and alcohol. It is characterized by its great reducing power, precipitating such metals as gold, silver and mercury from their solutions; it likewise reduces Fehling's solution. This compound is employed as an antiseptic in place of chrysarobin, pyrogallol and anthrarobin in treatment of skin diseases as a 1-10 to 4-10 per cent solution.

#### HYOSCINE. (Scopolamine, *Schmidt*). $C_{17}H_{21}NO_4$ .

This amorphous alkaloid occurs, along with atropine and hyoscyamine, in the various solanaceous plants, particularly the seeds of *Hyoscyamus niger*. Hyoscine is identical with, or, according to Schmidt and Hesse, it is *Scopolamine* ( $C_{17}H_{21}NO_4$ ), as obtained from the roots of *Scopolia atropoides*; commercial hyoscine being scopolamine. Among the various salts employed are the hydrobromate, hydrochlorate, hydro iodate and sulphate. It is stated that a solution of scopolamine, 1 to 1000, is five times stronger than the same solution of atropin.

**HYOSCINE HYDROBROMATE** ( $C_{17}H_{21}NO_4.HBr+3H_2O$ ) occurs in colorless, permanent, odorless, acrid crystals. It is employed as a hypnotic and sedative in various mental diseases, also as an antaphrodisiac, antisialagogue and mydriatic. Its dose as a hypnotic in insanity is 0.02 Gm. (1-30 grain), as sedative 0.0004 to 0.0006 Gm. (1-150 to 1-100 grain). Subcutaneously, as hypnotic, 0.0004 to 0.0006 Gm. (1-150 to 1-100 grain), as sedative 0.0002 to 0.0003 Gm. (1-300 to 1-200 grain). As a mydriatic a 1/2 solution is used. Antidotes the same as for atropine



**HYOSCYAMINE.**  $C_{17}H_{22}NO_3$ .

An alkaloid which occurs with hyoscyne and atropine in the seeds and leaves of the *Hyoscyamus Niger*, also found in roots of the *Scopolia Atropoides* and *Japonica*, also in the leaves of the *Duboisia Myoporides*, etc. It forms white, silky, permanent crystals, melting at  $108.5^{\circ}$  C. ( $227.3^{\circ}$  F.), almost insoluble in water, readily soluble in alcohol and ether. The action of hyoscyamine is like that of atropine, but it is chiefly employed as a hypnotic in mental disorders, as an anodyne and antispasmodic in asthma, epilepsy, colics, etc. Its usual dose is  $\frac{1}{2}$  to 2 Mg. (1-120 to 1-30 grain); as hypnotic for the insane 0.0075 to 0.015 Gm. ( $\frac{1}{8}$  to  $\frac{1}{4}$  grain).

Among the various soluble salts employed are the *hydrobromate*, *hydrochlorate* and *sulphate*.

**HYPNAL.** (Monochlorantipyryne.) See under Antipyryne.

**HYPNONE.**  $C_8H_8-CO-CH_3$ .

*Synonyms:* Acetophenone; Methyl-phenyl-ketone.

This is a mixed ketone obtained by the dry distillation of a mixture of calcium acetate and benzoate. Hypnone is a colorless, oily fluid, of peculiar odor and pungent taste. Its sp. gr. is 1.032, and when exposed to the temperature of  $14^{\circ}$  C. ( $57.2^{\circ}$  F.), it solidifies. Only slightly soluble in water, but readily miscible with alcohol, ether and the fatty oils. It is employed as a hypnotic in doses of 0.05 to 0.2 Gm. (7-10 to 3 grains), or 1 to 3 minims.

**IATROL.**

*Synonym:* Oxy-iodo-methyl-anilide.

Nothing is known concerning the preparation of this compound, which is described as being an inodorous, non-poisonous antiseptic, designed to replace iodoform.

**ICHTHYOL.**  $C_{28}H_{36}S_3O_6$  (N H<sub>4</sub>)<sub>2</sub>

*Synonym:* Ammonium-ichthyol-sulphonate.

A bituminous mineral of Tyrol, which is rich in fossilized remains of aquatic animals, is subjected to dry distillation, yielding a dark, oily distillate; this is treated with an excess of sulphuric acid, by which ichthyol-sulphonic acid is formed; this product on being purified and neutralized with ammonia yields ammonium ichthyol-sulphonate. Ichthyol forms a thick brownish liquid, of bituminous odor and taste, containing 15% of easily assimilable sulphur; its sp. gr. is 1.006; soluble in water, glycerine, a mixture of equal parts of alcohol and ether, and the oils. It is employed externally in various skin diseases, rheumatism, inflammatory diseases, and in gynaecological practice; internally it is given for various affections of the digestive and intestinal tract, also in treatment of scrofula, syphilis, etc. As external application, from 5 to 50% ointment or solution is used; in gonorrhoea 1 to 3% solutions are employed; the internal dose is 0.2 to 0.6 Gm. (3 to 10 m.), 3 times daily in pills or capsules.

Among the various other salts of ichthyol sulphonic acids, are the ichthyol-sulphonates of sodium, magnesium, zinc and mercury. These are black, tarry-like masses, the magnesium salt making the best pill, while the zinc salt is best for injections.

**INDOPHENINE.** See under Phenacetine.

**INGESTOL.**

An opalescent, yellow liquid, recommended for the treatment of acute and chronic disturbances of the stomach and intestines, also sea-sickness. As far as known, it contains magnesium, potassium and sodium sulphates, sodium chloride, ferric chloride, alcohol and water.

**IODANTIFEBRIN.**  $C_6H_4$  INH  $C_2H_3O_2$ 

*Synonym:* Iodacetanilid.

Prepared by the action of iodine on acetanilid. It forms a crystalline powder, insoluble in water. As far as its action is concerned it is almost inert. Nothing is known concerning its properties.

**IODINE TRI-CHLORIDE.**  $ICl_3$ .

Prepared by passing dry chlorine gas over dry iodine which is warmed; the iodine trichloride which forms sublimes in the cooler portions of the apparatus. Orange to yellow, hygroscopic needles, which melt at  $25^{\circ}$  C. ( $77^{\circ}$  F.), fuming on exposure to the air; when warmed it decomposes into iodine monochloride and chlorine. Soluble in alcohol and water; when dissolved in a large excess of the latter decomposition ensues. Iodine terchloride is a powerful antiseptic and disinfectant (1:1000), its value depending upon the liberation of chlorine, which is rendered still more active by the presence of iodine.

**IDO-CAFFEINE.** See under Caffeine.

**iodo-pheno-chloral.**

This is a mixture of equal parts of tincture of iodine, carbolic acid, and chloral hydrate, forming a brown-colored fluid, which is recommended as a parasiticide in certain skin diseases.

**iodopyrine.** See under Antipyrine.

**iodol.  $C_4I_4NH$ .**

*Synonym:* Tetraiodopyrrol.

To a solution of pyrrol (1 part) in alcohol (10 parts), a solution of iodine (12 parts) in alcohol (240 parts) is added, and allowed to stand 24 hours; on mixing this product with four times its volume of water, iodol separates in yellow flocks. Iodol, which contains 89% of iodine, forms a pale yellow, inodorous, tasteless powder, insoluble in water, soluble in 3 parts of alcohol, 15 parts of ether, 50 parts of chloroform and 15 parts of oil. Iodol was introduced as a substitute for iodoform, possessing the advantage of being inodorous and non-toxic.

**iodol-caffeine** ( $C_8H_{10}N_4O_2 + C_4I_4NH$ ) is a crystalline compound, made by the interaction between molecular weights of iodol and caffeine in concentrated alcoholic solution. It forms an inodorous, tasteless, crystalline powder, insoluble in the usual solvents. Used as an antiseptic like iodol, of which it contains 74.6 per cent.

**iodocasein**, a new antiseptic and iodoform substitute. It is a yellowish powder, with a faint iodine odor.

**iodo-theobromine.** See under Caffeine

**iron albuminate.**

*Synonym:* Ferrum Albuminatum.

This is a compound of ferric chloride and albumen, forming golden-yellow, transparent scales, which are soluble in water. See Dispensatories.

**iron, oxide saccharated, soluble.**

*Synonym:* Ferrum Oxydatum Saccharatum Solubile.

This is a red-brown colored powder, of sweet taste, soluble in 20 parts of hot water. For method of preparation, see Dispensatories.

**iron peptonate.**

*Synonym:* Ferrum Peptonatum.

This forms red-brown scales, which are soluble in water. This is a compound of ferric chloride and peptone (digested albumen). See Dispensaries.

**b-isoamylene.** See Pental.

**izal.** See under Cresol.

**jequiritin.** See Abrin.

**jessanodine.**

A proprietary antiseptic and analgesic.

**kairin.** See under Chinolin.

**kairolin.** See under Chinolin.

**kaputine.**

This is said to be merely a colored Acetanilid.

**kephaline.**

A proprietary headache remedy.

**klinol.**

A proprietary antipyretic and analgesic.

**kosin.  $C_{31}H_{38}O_{10}$ .**

*Synonyms:* Koussein; Kussin; Kosein.

A bitter principle, isolated from the flowers of *Hagenia abyssinica*, Willd. This forms inodorous, tasteless, yellow-colored crystalline needles, which melt at 142° C. (287.6° F.), insoluble in water, readily soluble in alcohol, ether and the alkalis. Kosin is employed as an anthelmintic and tæniacuge in doses of 1 to 2 Gm. (15 to 30 grains).

**kresapol.** See under Cresol.

KRESIN. See under Cresol.

KOUSSEIN. See Kosin.

KUSSIN. See Kosin.

LABORDINE.

A secret remedy, forming a greyish powder, slightly soluble in water, soluble in alcohol. It is stated to contain acetanilid, caffeine, saccharin and possibly a little apiol.

LACTOL, OR LACTO-NAPHTHOL.

A lactic ester of b.-naphthol, similar to benzo-naphthol. In the organism it is split up into lactic acid and b.-naphthol, hence is used as an intestinal antiseptic. It forms a colorless and tasteless powder. Dose, about 0.25 to 0.5 Gm. (3.5 to 8 grains).

LACTOPHENINE. See under Phenetidine.

LACTYL-PHENETIDINE. See under Phenetidine.

LÆVULOSE. See Diabetin.

LAMIN.

An alkaloid obtained from the flowers of *Lamium album*. Employed in the form of a sulphate or hydrochloride in subcutaneous injections as a powerful hæmostatic.

LANOLIN, SULPHURATED. See Thilinin.

LANTANIN.

An alkaloid occurring in the herb *Lantana Braziliensis*. Forms a white, bitter, crystalline powder, which is employed as an antiperiodic and antipyretic in doses of 1 to 2 Gm. (15 to 30 grains).

LEUKO ALIZARIN. See Anthrarobin.

LIPANIN.

A mixture of olive oil, with 6% of oleic acid, offered as a substitute for cod-liver oil.

LIQUOR ANTHRACIS SIMPLICIS, AND COMPOSITUS.

An antiseptic preparation of coal-tar, of the consistence of a thin fluid, which, when spread in thin layers, evaporates rapidly. A solution of sulphur, resorcin and salicylic acid in Liquor Anthracis Simplicis constitutes the "Compound Solution." Nothing is known as to the solvent and method of preparation.

LIQUOR ANTISEPTICUS-VOLKMANN.

An antiseptic solution supposed to contain alcohol (10), Glycerin (200) and water (100).

LITHIUM DIURETIN. See Uropherin.

LITHIUM SALTS.

**BENZOATE.**  $C_6H_5COO Li$ . Equal molecular weights of lithium carbonate and salicylic acid are brought together with sufficient water and heated until solution has taken place; the resulting solution of lithium benzoate is evaporated to dryness on a water-bath. This salt occurs as a fine, white powder or in scales, which are soluble in 3 parts of cold water and 10 parts of alcohol. Is employed in the treatment of rheumatism in doses of 0.5 to 1 Gm. (8 to 15 grains).

**DITHIOSALICYLATE 1.**  $S-C_6H_3(OH)COO Li$  Obtained by neutralizing dithio-salicylic acid 1 (q. v.) with lithium carbonate. This is a yellow powder, readily soluble in water and insoluble in alcohol. The therapeutic properties and dose of this salt have not been determined.

**DITHIOSALICYLATE 2** is obtained by neutralizing dithiosalicylic acid 2 (q. v.) with lithium carbonate. This salt forms an amorphous powder which is soluble in water and alcohol. Employed in treatment of rheumatism and gout.

**FORMATE.**  $HCOO Li + H_2O$ . Obtained by neutralizing formic acid with lithium carbonate, recrystallizing the resulting salt. It forms colorless needles which are very soluble in water. Employed in rheumatism and gout; dose, about 0.2 Gm. (3 grains).

**SALICYLATE.**  $C_6H_4(OH)COO Li$ , is obtained by neutralizing an equivalent amount of salicylic acid (133 p.) with lithium carbonate (37 p.) in the presence of water containing a little alcohol; the resulting solution should have a slight acid reaction. This salt forms a white, readily soluble, crystalline powder, which is employed in treatment of acute and chronic rheumatism in doses of 0.5 to 1 Gm. (8 to 15 grains).

**SULPHOICHTHYOLATE** is obtained by neutralizing ichthyol-sulphonic acid with lithium carbonate. It forms a black looking, tarry-like mass, which is dissolved by water, forming a turbid solution. Employed internally in treatment of rheumatism, in doses of 0.5 Gm. (8 grains).

**LORETIN.** See under Chinolin.

**LOSOPHAN.**  $C_6H_3(OH)(CH_3)$ .

*Synonym:* Tri-Iodo-Meta-Cresol.

This is prepared by the action of iodine, in the presence of an alkali, on o-oxy-p-toluic acid. Losophan forms colorless, inodorous crystals, insoluble in water, soluble in ether and the fixed oils, melts at 121.5° C. (250.5° F.), and contains 78.4 per cent of iodine. It is employed in various parasitic affections of the skin in alcoholic solution (1 to 2%), or as an ointment (1 to 10%).

**LUCILLINE.**

A pure petroleum jelly.

**LUPERINE.**

A mixture of powdered gentian, columbo and quassia. Remedy against dipomania.

**LYCETOL.** (Di-methyl-piperazine tartrate)  $(NH(CH_2CHCH_3)_2NH)$ .

This is obtained by distilling glycerin with ammonium bromide, and reducing the resulting product (di-methyl-pyrazine) with metallic sodium; is said to be more efficacious as a solvent for uric acid than piperazine. The dose is the same as that of piperazine.

**LYSIDIN.**  $(CH_2N)(CH_2NH)C.CH_3$ .

*Synonym:* Methyl-glyoxalidin.

This base is obtained by Ladenburg by the interaction between ethylen-diamine hydrochloride and sodium acetate, liberating the base from its salt by means of a caustic alkali. It is described as being a bright red-colored crystalline mass, very hygroscopic and characterized by a peculiar mouse-like odor. Because of its extremely hygroscopic nature it is now placed on the market in the form of a 50 per cent. solution. This is a pale yellowish liquid of soap-like feeling when rubbed between the fingers; its sp gr. is 1.054 and boiling point about 108° C. (226.4° F.). It precipitates solutions of mercuric chloride and iodide, soluble in excess of lysidin; ferric chloride forms a brown precipitate, soluble in excess of the reagent. One gramme of lysidin (cryst.) requires 5 Cc. of  $\frac{N}{1}$  hydrochloric acid v.s. for neutralization, phenol-phtalein being the indicator. Lysidin is recommended as a solvent for uric acid deposits, being given in doses of 1 to 5 Gm. (15 to 75 grains) daily, dissolved in excess of carbonated water. Where the solution (50%) is employed an equivalent double amount is used.

**LYSOL.** See under Cresol.

**MAGNESIUM SALTS.**

**BENZOATE.**  $(C_6H_5COO)_2Mg$ . Magnesium carbonate is mixed with sufficient water to form a smooth paste; to this is then added an equivalent (molecular) quantity of benzoic acid, and the solution evaporated to dryness. It forms a white crystalline powder, soluble in 20 parts of cold water. Employed in the treatment of gout, urinary calculi, etc. It has been recommended by Klebs in treatment of tuberculosis.

**LACTATE.**  $(C_3H_5O_2)_2Mg+3H_2O$ . Lactic acid, previously diluted with water, is neutralized with magnesium carbonate, evaporated and crystallized. It forms colorless crystals which are soluble in 30 parts of cold water. Employed as a laxative in doses of 1 to 3 Gm. (15 to 45 grains).

**PHENOLSULPHONATE.** This salt, which occurs as white, almost odorless, needles, with a bitter, not disagreeable, taste, has been recommended as an antiseptic purgative in doses of 15 to 30 grains. The alkaline character of the salt is an advantage, as it diminishes the danger of intestinal irritation. The salt is soluble in 2 parts of water and 5 parts of alcohol.

**SALICYLATE.**  $(C_6H_4(OH)COO)_2Mg+4H_2O$ . Salicylic acid is dissolved in boiling water and neutralized with magnesium carbonate, evaporated and crystallized. It forms colorless, hygroscopic crystals which are readily soluble in water and alcohol. Employed in abdominal typhus in doses of 1 to 2 Gm. (15 to 30 grains)

**MALAKIN.**  $C_6H_4(OC_2H_5).N:CH.C_6H_4(OH).$

*Synonyms:* Salicyl-phenetidine; Salicyliden-phenetidine.

This is a condensation product of *p*-phenetidine and salicylic aldehyde, occurring in bright yellow needles, which melt at  $92^\circ C.$  ( $197.6^\circ F.$ ), almost insoluble in water and alcohol and decomposed by dilute mineral acids. Malakin is recommended as an antipyretic and antirheumatic in doses of 1 Gm. (15 grains).

## MERCURY SALTS AND COMPOUNDS.

**MERCUROUS ACETATE.**  $(CH_3COO)_2Hg_2.$  A solution of mercurous nitrate is poured, under constant stirring and away from access of light, into a cold solution of sodium acetate; the precipitate formed is allowed to stand in a cool place for 12 hours, then washed with a little water and alcohol, and dried at a low temperature. It forms white, glassy scales, which turn gray on exposure to heat or light, particularly when moistened with water; soluble in 300 parts of water and insoluble in alcohol. Employed in treatment of syphilis in form of pill, dose being 0.01 to 0.06 Gm. (1-6 to 1 grain), externally in ointments (1:10:25).

**MERCURY ÆTHYLCHLORIDE** is obtained by mixing equal parts of mercuric chloride (dissolved in alcohol) and mercury ethide; the resulting æthylchloride forms colorless shining scales, of unpleasant ethereal odor, slightly soluble in water and alcohol. Because of its indifference to albumen, it is recommended for subcutaneous injection in place of mercuric chloride.

**MERCURY AMIDOPROPIONATE, OR ALANATE,** is prepared by neutralizing amidopropionic acid with mercuric oxide, evaporating and crystallizing. Forms a white crystalline soluble powder. Employed for subcutaneous injections in place of mercuric chloride.

Dose, 0.005 to 0.01 Gm. (1-12 to 1-6 grain).

**MERCURY ALBUMINATE** is obtained by pouring a solution of albumen (1:8) into a 4% mercuric chloride solution, the former being in slight excess. The solution is allowed to stand for 48 hours; the clear solution is then decanted from the precipitate, which is at once mixed with sugar of milk and dried in an exsiccator, adding sufficient milk sugar, so that the resulting powder contains 1 to 1.5% of mercury albuminate. This preparation is used as an antiseptic dusting powder in surgery.

**MERCURIC OXIDE-ASPARAGIN,**  $(C_2H_5(NH_2)(CONH_2)(COO)_2Hg,$  is an aqueous solution prepared by adding 0.72 Gm. of freshly precipitated mercuric oxide to a solution of 1 gramme of asparagin in 5 Gm. of water, shaking frequently for some time, filtering, and adding water to 72 Cc. This solution (1%) is used subcutaneously in treating syphilitic diseases.

**MERCURIC BENZOATE,**  $(C_6H_5COO)_2Hg+H_2O,$  is obtained by precipitating a solution of mercuric nitrate with a solution of sodium benzoate. This forms a white, crystalline, inodorous, tasteless powder, slightly soluble in water, but readily soluble in a solution of common salt. Employed subcutaneously in treatment of syphilis, the solution being prepared from 3 parts of the benzoate, 1 part of sodium chloride and 400 parts of water, one syringeful being given daily.

**MERCURIC-CHLORIDE-UREA.** To a cold solution of 1 Gm. of mercuric chloride in 100 Cc. of water, 0.5 Gm. of urea is added, and, when solution has taken place, filtered. Employed subcutaneously in syphilis; 1 Cc. of the solution contains 0.01 Gm. of mercuric chloride.

**MERCURIC CYANIDE,**  $Hg(CN)_2,$  is made by passing hydrocyanic-acid gas through water which contains freshly precipitated yellow oxide of mercury; the solution is then filtered, evaporated and crystallized (caution!). This forms colorless crystals, which are very soluble in water and alcohol. Employed in syphilitic diseases subcutaneously (0.1 Gm. in 10 Cc. water),  $\frac{1}{2}$  to 1 syringeful daily. Great caution should be observed in administering this remedy.

**MERCURY CARBOLATE OR PHENATE,**  $(C_6H_5O)_2Hg+H_2O.$  An alcoholic solution of mercuric chloride is added to an alcoholic solution of sodium phenate, the solution is evaporated to dryness, and the product washed with water, then crystallized from alcohol. Mercury phenate forms colorless needles, almost insoluble in cold water and alcohol. Employed in syphilis in doses of 0.016 to 0.032 Gm. ( $\frac{1}{4}$  to  $\frac{1}{2}$  grain).

**MERCURIC FORMAMIDATE,**  $(HCONH)_2Hg,$  is a solution resulting from the solvent action of formamide on freshly precipitated mercuric oxide. Each cubic centimeter corresponds to 0.01 Gm. mercuric chloride. Employed subcutaneously in syphilis (0.1 to 10).

**MERCURY GALLATE.** Molecular quantities of gallic acid and yellow mercuric oxide are mixed with water and evaporated to dryness. This forms a greenish-black, insoluble powder, which is used as an antisyphilitic in place of the less stable tannate.

**MERCURY IMIDO-SUCCINATE OR ASPARAGINATE.**  $[C_2H_4(CO)_2N]_2Hg$ . Freshly precipitated mercuric oxide is warmed with an aqueous solution of succinimide, the filtered solution is evaporated and crystallized. It forms a lustrous crystalline powder, soluble in 25 parts of water and 300 parts of alcohol. Subcutaneously injected in doses of 0.01 Gm. (1-6 grain).

**MERCURIC NAPHTHOLATE.**  $(C_{10}H_7O)_2Hg$ . A solution of mercuric nitrate is precipitated by means of *o*-sodium naphtholate; the resulting precipitate forms, when washed and dried, an inodorous, insoluble powder, employed externally in skin diseases, internally in treatment of typhus. Dose, 0.05 Gm. (1 grain).

**MERCURIC OXYCYANIDE,**  $Hg_2O(CN)_2$ , is a white crystalline soluble powder, which is said to be six times more powerful as an antiseptic than corrosive sublimate, at the same time possessing the advantages of being neutral, less caustic and not coagulating albumen. As an antiseptic wash, solutions of 1 to 1,500 are employed.

**MERCURIC PEPTONATE,** a yellowish solution, which contains mercuric chloride 1 part, peptone 3 parts and sodium chloride 3 parts, dissolved in 100 parts of water. This is employed for subcutaneous injections, since it does not cause pain nor produce abscesses. The dose is 1 Cc. corresponding to 0.01 Gm. (1-6 grain) of mercuric chloride.

**GLUTINE-PEPTONE-SUBLIMATE** is a compound of mercuric chloride (25%) with glutine peptone hydrochloride. This forms a white hygroscopic powder, which is used in subcutaneous injections, the dose being 0.01 Gm. (1-6 grain).

**MERCURY-POTASSIUM-HYPOSULPHITE,**  $3Hg(S_2O_3)_2 + 5K_2S_2O_3$ , is prepared by dissolving freshly precipitated mercuric oxide in a solution of potassium hyposulphite, evaporating and crystallizing. This salt is employed for subcutaneous injections.

**MERCURIC RESORCINATE.** The precipitate obtained by interaction between solutions of mercuric acetate and sodium resorcinate is dissolved in excess of mercuric acetate, evaporated and crystallized. This forms a dark yellow, crystalline powder, insoluble in the usual solvents. For subcutaneous injections the following formula may be used:

Hydrargyri Resorc.-acetici -- 5.6 Gm.; Paraffin liquid -- 5.5 Gm.; Lanolin anhyd. 2.0 Gm.; each 1 Cc. contains 0.387 Gm. of mercury; the fluid should be warmed before use, and not more than 0.2 Cc. employed weekly.

**MERCURIC SALICYLATE.**  $C_6H_4 \left\langle \begin{array}{c} O \\ \text{COO} \end{array} \right\rangle Hg$ . This may be prepared by interaction between solutions of sodium salicylate and mercuric nitrate, or by warming together equivalent quantities of salicylic acid and freshly precipitated mercuric oxide in the presence of water on a water-bath, until the yellow mercuric oxide has been entirely converted into the white salicylate. This forms a white, inodorous, tasteless and amorphous powder, which is insoluble in water and alcohol, but is readily dissolved by a solution of sodium chloride or any of the halogen salts. It is given in doses 0.001 to 0.008 Gm. (1-64 to  $\frac{1}{8}$  grain).

**MERCURY SOZOIODOL,**  $(C_6H_5I_2(OH)SO_2)Hg$ , is obtained as a precipitate, on mixing concentrated aqueous solutions of sodium soziodol and mercuric nitrate. It forms a fine, yellow powder, which is soluble in 500 parts of water, but freely taken up by a solution of sodium chloride or any of the halogen salts. This salt is employed chiefly in the treatment of syphilis, locally and subcutaneously. The subcutaneous dose is 0.06 Gm. (1 grain). For antiseptic applications a 1 to 2% ointment, dusting powder or wash may be employed.

**MERCUROUS TANNATE** is prepared by rubbing a concentrated solution of mercurous nitrate with a solution of tannin until a pasty mass separates; this is then washed with water by trituration and dried at 40° C (104° F.). It forms brownish-green scales, which are not soluble (without decomposition) in water or alcohol. Employed in syphilis in doses of 0.06 to 0.13 Gm. (1 to 2 grains).

**MERCURY THYMOLATE,**  $C_{10}H_{13}O Hg OH$ , is obtained by precipitating a solution of mercuric nitrate with sodium-thymolate. An unstable, violet-green powder.

**MERCURY THYMOLACETATE,**  $C_{10}H_{13}O Hg + Hg CH_3COO$ , is prepared by dissolving the above mercury thymolate in a concentrated hot solution of mercuric acetate; on cooling, the double salt crystallizes out. It forms a crystalline insoluble powder, containing 57% of mercury. Both of these salts are used internally in doses of 0.005 to 0.01 Gm. (1-12 to 1-6 grain); when used subcutaneously it should be suspended in paraffin oil as directed under mercuric resorcinate.

**MERCURY TRIBROM-PHENOL-ACETATE.** A hot solution of tribromphenolate of sodium is precipitated by a solution of mercuric acetate, the resulting precipitate is then dissolved in a hot concentrated solution of mercuric acetate, which, on cooling, deposits yellow crystals of the above salt. This contains 29.3% of mercury, and is employed subcutaneously in treatment of syphilis.

META-DI-HYDROXY-BENZENE. See Resorcin.

METHACETINE.  $C_6H_4.OCH_3.NHCH_3CO.$

*Synonyms:* Para-acetanisidine; Para-oxymethyl-acetanilide.

This is an analogous compound to phenacetine, being the methyl ester of para-phenetidine, or it may be regarded as acetanilide in which a hydrogen in the benzene nucleus is substituted by an oxy-methyl group ( $-OCH_3$ ). Methacetine forms colorless, inodorous and tasteless, scaly crystals, which melt at  $127^{\circ} C.$  ( $260.6^{\circ} F.$ ), almost insoluble in cold water, but readily soluble in hot water, also in alcohol, glycerin and the fatty oils. It is recommended as an antipyretic and antineuralgic in doses of 0.032 to 0.5 Gm. ( $\frac{1}{4}$  to 8 grains); 0.5 Gm. of methacetine corresponds to 1 Gm. of phenacetine as antipyretic, and 1 Gm. of the former corresponds to 2 Gm. of the latter as antineuralgic.

p-METHOXY-ANTIPYRIN. See under Antipyrine.

METHYL-ACETANILID. See Exalgine.

METHYLAL.  $CH_2(OCH_3)_2.$

*Synonym:* Methylene-dimethyl-ether.

This fluid is obtained by the abstraction of one molecule of water from a compound of one molecule of formaldehyde and two of methyl-alcohol; the resulting product belongs to the group of organic bodies known as "acetals." It is a colorless liquid, of an ethereal odor, soluble in water, alcohol and ether; its sp. gr. is 0.855 ( $15^{\circ} C.$ ) and boiling-point is  $42^{\circ} C.$  ( $107.6^{\circ} F.$ ). Methylal is recommended as a hypnotic in doses of 1 to 5 Gm. (15 to 75 grains).

METHYL CHLORIDE  $CH_3Cl.$

*Synonyms:* Chloromethyl; Monochloromethane.

This gaseous compound is made by heating methyl-alcohol and hydrochloric acid under pressure at  $100^{\circ} C.$ ; the gas produced is washed and dried, and then compressed in copper or steel cylinders at low temperature with pressure. Methyl chloride forms a colorless and inflammable gas of an ethereal odor, which, under a pressure of five atmospheres or at a temperature of  $-25^{\circ} C.$ , is converted into a liquid. It appears in commerce in the compressed liquid form, which is employed as a spray to produce local anæsthesia. A minute stream of the liquid is directed upon a tampon of wool and silk placed over the surface to be anæsthetized; the rapid evaporation produced absorbs the heat from the parts and leaves them bloodless and insensible.

RICHARDSON'S COMPOUND LIQUID consists of a mixture of ether and chloroform saturated with methyl chloride; has been recommended as a substitute for chloroform.

METHYLENE BICHLORIDE. See Methylene Chloride.

METHYLENE BLUE.

*Synonym:* Tetra-methyl-thionine chloride.

A complex derivative of diphenylamine, classed as an "aniline dye." This salt occurs in dark blue or reddish-brown crystals or crystalline powder, of a bronze-like tinge, slightly soluble in water and alcohol, producing a deep blue solution. Methylene blue is employed internally as an analgesic in neuralgic and rheumatic affections in doses of 0.13 to 0.5 Gm. (2 to 8 grains), or subcutaneously in doses of 0.016 to 0.06 Gm. ( $\frac{1}{4}$  to 1 grain).

METHYLENE CHLORIDE.  $CH_2Cl_2.$

*Synonyms:* Dichloromethane; Methylene bichloride.

Prepared by the reducing action of nascent hydrogen (from zinc and hydrochloric acid) upon chloroform, the product being washed and rectified. This forms a colorless liquid, which resembles chloroform in odor and solubility; specific gravity is 1.354 ( $15^{\circ} C.$ ); boiling point  $41.6^{\circ} C.$  ( $107^{\circ} F.$ ). Like pure chloroform it is readily decomposed by the action of sunlight, hence the addition of one per cent. of alcohol is recommended. Methylene chloride is recommended as an anæsthetic in place of chloroform.

METHYL-GLYOXALIDIN. See Lysidin.

METHYL-PHENACETIN. See under Phenacetine.

METHYL-PROTOCATECHUIC ALDEHYDE. See Vanillin.

METHYL-VIOLET. See Pyoktanin, blue.

**MICROCIDIN.**  $C_{10}H_7ONa$ .

This is a sodium *b*-naphthol, obtained by fusing *b*-naphthol with one-half of its weight of sodium hydrate. As an antiseptic wash a 1/2% aqueous solution is employed. It is recommended internally as an antipyretic and antiseptic.

**MIGRANIN.** See under Antipyrine.**MONOCHLORAL-ANTIPYRINE.** See under Antipyrine.**MONO-CHLOR-METHANE.** See Methyl Chloride.**MORPHINE SALTS.**  $C_{17}H_{17}(OH)_2.NO.A$ .

Among the newer salts of this base are the :

*BENZOATE*, obtained by neutralizing morphine with benzoic acid. This forms white, crystalline prisms or powder, which is employed in treatment of asthma in the same doses as the morphine sulphate.

*BORATE* is recommended for subcutaneous injections and eye washes, because of the stability and neutral nature of the salt.

*PHTALATE* and *TARTRATE* are recommended for subcutaneous injections, both being very soluble in water.

**MORRHUIN.**  $C_{19}H_{27}N_2$ .

A basic principle found in cod liver oil. It is a thick, oily liquid, which is soluble in alcohol and ether; 2 Mg. of the principle are presumed to represent a tablespoonful of cod liver oil in activity.

**MYRONIN.**

The firm of Eggert & Hæckel, in Berlin, have introduced under this name a new ointment base, a vehicle consisting of a mixture of soap, carnauba wax and dœgling oil. The latter possesses remarkable penetrating powers and does not readily become rancid. Myronin is prepared by heating stearic acid, in the presence of carnauba wax, with sufficient dilute potassium carbonate solution until saturation has taken place. The mixture of the resulting stearin soap and wax is then diluted with the dœgling oil until an ointment-like mass results, possessing the desired degree of consistency. This base, as prepared, contains about 12.5% of water, which may be increased or decreased as desired.

**MYRRHOLIN.**

A solution of equal parts of myrrh and oil (fatty), which has been used as a vehicle for creosote in laryngeal and pulmonary tuberculosis.

**MYRTOL.**

A mixture of dextro-pinene ( $C_{10}H_{16}$ ), eucalyptol ( $C_{10}H_{16}O$ ) and a camphor like body ( $C_{10}H_{16}O$ ), obtained by the fractional distillation of the oil of *Myrtus Communis*. It forms a colorless liquid, of aromatic odor, boiling between 160° to 170° C. (320° to 333° F.); recommended as a disinfectant and deodorant in putrid bronchitis and other diseases of the respiratory tract. Dose, 5 minims every two or three hours, taken in capsules.

**NAPHTHALOL.** See Betol.**NAPHTHOL.**

This is an isomer of *b*-Naphthol, obtained by the action of sulphuric acid on naphthalene. It is employed as an antiseptic for both internal and external administration, being apparently more soluble and more efficient than *b*-Naphthol, and possessing about 1-3 of the latter's poisonous properties, but is more irritant. As a wash, a solution of about 0.3 Gm. (4.5 grains) to 1 kilo (2.1-5 pounds) of water is used; internally, the dose is 0.4 to 1 Gm. (6 to 15 grains).

*b*-**NAPHTHOL-ANTIPYRINE.** See Naphthopyrin.**NAPHTHOL-ARISTOL.** (Di-iod-*b*-naphthol).

Prepared like aristol; a solution of sodium naphthol (*b*-naphthol 11p and sodium carbonate 4p.) is precipitated by an aqueous solution of iodine in potassium iodide (2.4p. each). It is a greenish-yellow powder, insoluble in water, slightly soluble in alcohol and very soluble in chloroform. The compound is recommended as an antiseptic.

*b*-**NAPHTHOL BENZOATE.** See Benzonaphthol.



**b-NAPHTHOL CAMPHOR.**

*Synonym:* Naphthol, camphorated.

A syrupy fluid made by fusing together naphthol 1 part and camphor 2 parts. This is used as an antiseptic application to boils and in tuberculosis.

**b-NAPHTHOL CARBONATE.**  $\text{CO}(\text{OC}_{10}\text{H}_7)_2$ .

A di-naphthyl ester of carbonic acid. It is prepared by the action of phosgene on b-naphthol sodium, yielding shining, colorless scales, which are insoluble in water and melt at 176° C. (348.8° F.). Recommended as a substitute for b-naphthol, as an intestinal antiseptic, owing to its less irritating qualities.

**NAPHTHOL CARBOXYLIC ACID.**  $\text{C}_{10}\text{H}_6(\text{OH})\text{CO}_2\text{H}$ .

*Synonym:* *x*-Oxynaphthoic Acid.

This is obtained by the action of carbonic acid gas upon sodium-*x*-naphthol under pressure. It forms a white crystalline powder or acicular crystals; melts at 186° C. (366.8° F.); insoluble in water, soluble in alcohol, ether, fatty oils and glycerin. Forms soluble salts with the alkalis or alkali carbonates. Recommended as an antiseptic disinfectant and antiparasitic, in form of an ointment (5 to 10%) or antiseptic gauze (1%).

**b-NAPHTHOL-DISULPHONATE OF ALUMINUM.** See Alumol.**b-NAPHTHOL-*x*-MONO-SULPHONATE OF CALCIUM.** See Asaprol.**NAPHTHOPYRIN.**

*Synonym:* b-Naphthol-antipyrine.

Made by triturating together equal molecular quantities of b-Naphthol and antipyrin, forming thereby a tough mass, which gradually assumes a crystalline form; insoluble in water and soluble in alcohol.

**NAPHTHOPYRINE.** See under Antipyrine.**NAPHTHOSALOL.** See Betol.**NARCEINE HYDROCHLORATE.**  $\text{C}_{23}\text{H}_{29}\text{NO}_9 \cdot \text{HCl} + 3\text{H}_2\text{O}$ .

Narceine is found in opium to the extent of 0.1 to 0.4%. The hydrochlorate forms colorless, crystalline needles, which are soluble in water and alcohol. It is employed as a hypnotic in doses of 0.01 to 0.06 Gm. (1-6 to 1 grain).

**NARCOTIN.**  $\text{C}_{22}\text{H}_{23}\text{NO}_7$ .

This alkaloid, which is found in opium, occurs in colorless crystals, which melt at 176° C. (348.8° F.); insoluble in water and alkalis, but readily soluble in alcohol and ether. It is used as a hypnotic in doses of 0.25 to 1 Gm. (3.8 to 15 grains).

**NASROL.** See Sodium Sulfocaffeate.**NEURINE.**  $\text{N}(\text{CH}_3)(\text{C}_2\text{H}_5)\text{OH}$ .

*Synonym:* Tri-methyl-vinyl-ammonium-hydroxide.

This base, containing the unsaturated radicle "vinyl,"  $\text{C}_2\text{H}_3$ , is found along with neuridine ( $\text{C}_5\text{H}_{14}\text{N}_2$ ) among the products of the decomposition of flesh. Obtained synthetically by reaction between ethylene bromide and alcoholic trimethylamine at 60° C. (140° F.) under pressure. It forms a very poisonous, strongly alkaline fluid, which is very soluble in water, but is decomposed on boiling. A 3% solution is employed as a local application for diphtheritic membranes.

**NEURODINE.**  $\text{C}_6\text{H}_4(\text{OCO} \cdot \text{CH}_3) \text{NH} \cdot \text{COOC}_2\text{H}_5$ .

*Synonym:* Acetyl-p-ethoxy-phenyl-urethane.

A substance introduced by Merck as an antipyretic and antineuralgic. By the action of chloro-carbonic ether ( $\text{CO}(\text{Cl})(\text{OC}_2\text{H}_5)$ ), an amido-phenol ( $\text{C}_6\text{H}_4(\text{OH})\text{NH}_2$ ), para-oxyphenyl-urethane, is formed, which on being acetylated is converted into neurodine. This forms colorless, inodorous crystals, melting at 87° C. (188.6° F.), soluble in 1400p. of cold water.

Dose as antineuralgic is 1 to 1.5 Gm. (15 to 23 grains), as antipyretic 0.5 Gm. (7½ grains).

**NITRO-SALOL** See under Salol.**NUTRIN.**

A dietetic food, which, according to its manufacturers, represents "the pure nutritious substance of meat.

## ODONTODOL.

Said to be a mixture of Cocaine Hydrochlorate (1), Oil of Cherry Laurel (1), Tincture Arnica (10), and Solution of Ammonium Acetate (20). Used as a dental anodyne.

## OLEO-CREOSOTE. See under Guaiacol.

## ORCHIDIN.

Prof. Poehl's Testicular Fluid. Recommended as a nervine.

OREXIN.  $C_6H_4.NCH.CH_2NC_6H_5$ .

*Synonym:* Phenyl-dihydro-chin-azoline.

This, a complex chinoline derivative, is obtained by the action of sodium form-anilid on o-nitrobenzyl chloride, the resulting o-nitrobenzylformanilid is reduced to the corresponding amido derivative by means of nascent hydrogen; the hydrochlorate of this base on heating gives up one molecule of water, yielding the hydrochlorate of orexin, from which the base orexin may be obtained by treatment with an alkali.

This occurs as a white, amorphous, tasteless powder, which is almost insoluble in water. Employed as a stomachic, stimulating the appetite, also as an antiemetic, given in doses of 0.13 to 0.4 Gm (2 to 6 grains) either in wafers or capsules, followed by draughts of beef tea or cocoa to prevent any local irritation.

OREXIN HYDROCHLORIDE.  $C_6H_4.NCH.CH_2NC_6H_5.HCl+2H_2O$ .

Forms colorless, odorless crystals, of bitter pungent taste, melting at 80° C. (176° F), soluble in 15 parts of cold water. The properties and dose are same as those of Orexin.

ORTHIN.  $C_6H_3.OH.COOH.NH.NH_2$ .

*Synonym:* Ortho-hydrazine-para-oxybenzoate.

Orthin is a derivative of phenyl-hydrazine ( $C_6H_5-NH-NH_2$ ) in which one hydrogen atom of the benzene nucleus is replaced by a hydroxyl-group and another by the carboxyl group. The *hydrochlorate*, in which form it usually appears, forms colorless soluble crystals, and is recommended as an antipyretic. Experiments have shown it to be too dangerous for general use.

ORTHO-AMIDO-SALICYLIC ACID.  $C_6H_3(NH_2)(OH)COOH$ .

Obtained through reduction of ortho-nitrosalicylic acid. It forms a gray-white, amorphous, inodorous powder, of a faint sweet taste. Insoluble in water, alcohol and ether.

It is employed in treatment of chronic rheumatism, in doses of 0.25 to 0.5 Gm. (3 to 7 grains).

## ORTHO-HYDRAZINE-PARA-OXY-BENZOATE. See Orthin.

## ORTHO-OXY-BENZOIC ACID.

*Synonym:* Salicylic Acid.

## ORTHO-PHENOL-SULPHONIC ACID. See Aseptol.

## ORTHO-PHENOLSULPHURIC ACID. See Aseptol.

## ORTHO-SULPHAMINE-BENZOIC-ANHYDRIDE. See Saccharin.

## ORTHO-SULPHO-CARBOLIC ACID. See Aseptol.

## ORTHO-TOLYL-ACETAMIDE. See Aceto-ortho-toluid.

OSMIC ACID.  $OsO_4$ .

Obtained by heating osmium in fine powder in a current of oxygen or moist chlorine; or by evaporating a solution of osmium in nitromuriatic acid to dryness. Occurs in colorless or yellowish-green, lustrous needles, of a penetrating chlorine-like odor, melting at 40° C. (104° F.); stains the skin and linen black. Externally in a 1 per cent. solution (fresh) osmic acid acts as a caustic for cancerous and scrofulous sores; subcutaneously (1½ solution) it has been employed in neuralgia, epilepsy, sarcoma, cancer, etc. Dose internally 0.001 Gm. (1-64 grain) in pill form, freshly prepared.

## OUABAIN.

A glucosidal principle obtained from the wood of *Acocanthera ouabain*, also the seed of *Strophanthus glabrus*. Inodorous white crystals, slightly soluble in cold, freely in hot water and dilute alcohol, melting at 200° C. (392° F.). Employed in doses of 0.000065 Gm. (1-1000 grain) repeated at frequent intervals, for the relief of whooping-cough.

*x*-OXYNAPHTHOIC ACID.  $C_{10}H_6(OH).COOH$ .

*Synonym:* *x*-Naphthol-carboxylic acid.

Obtained by the action of carbonic acid on *x*-Naphthol sodium under pressure at 140° C.; the resulting sodium salt is a yellowish powder or colorless needles, of melting-

point 186° C. (366.8° F.). Very slightly soluble in cold water, but very soluble in alcohol. The acid is quite soluble in an aqueous solution of borax. Its properties are those of an antiseptic and antizymotic.

Applied as an ointment (10%) in treatment of scabies.

#### OXY-SPARTEINE. $C_{15}H_{24}N_2O$ .

This is an oxidation product of sparteine (q. v.), and occurs in colorless, hygroscopic crystals, melting at 81° C. (181.4° F.) and soluble in the usual solvents. It is employed subcutaneously as a heart stimulant; it, however, lowers the pulse at the same time. Dose is 0.04 Gm. (3-5 grain) gradually increasing to 0.1 Gm. (1.5 grains).

The *hydrochlorate* melts between 48° and 50° C. (118.4° to 122° F.). This alkaloid is incompatible (therapeuticaly) with opiates.

#### OZALIN.

A disinfectant, said to consist of a mixture of Calcium, Magnesium and Iron Sulphates, with Caustic Soda and Magnesia.

#### PAPAIN.

*Synonyms:* Papayotin; Plant Pepsin.

The concentrated active principle of the juice of the unripe fruit of *Carica papaya*. The juice is concentrated in vacuo, and the ferment is precipitated by the addition of alcohol. Papain forms an amorphous, white, hygroscopic powder, soluble in water and glycerin only. Employed as a digestive ferment; like animal ferments (pepsin) it digests albuminous substances, possessing the advantage of being active in either acid, alkaline or neutral solutions. Dose 0.12 to 0.3 Gm. (2 to 5 grains) after meals. Applied as a 5 per cent. solution (in equal parts of glycerine and water) it is used to dissolve the false membranes of croup and diphtheria.

PAPAYOTIN. See Papain.

PARA-ACET-AMIDO-PHENETOL. See Phenacetine.

PARA-ACET-ANISIDINE. See Methacetine.

PARA-ACET-PHENETIDIN. See Phenacetin.

PARA-ÆTHOXY-PHENYL-URETHANE. See Thermodin.

PARA-ALLYL-PHENYL-METHYL ETHER. See Anethol.

PARA-BROM-ACETANILID. See Antiseptine.

PARA-CHLOR-PHENOL.

A crystalline substitution product of phenol. When fused it congeals at 33° C.; it is soluble in alcohol, ether and fatty oils, almost insoluble in water. Karpow recommends this as a powerful antiseptic and disinfectant, only exceeded in intensity by silver nitrate and mercuric chloride. It has been successfully employed in treatment of erysipelas in a 2 to 3% vaseline ointment.

PARACOTOIN.  $C_9H_{12}O_6$ .

A principle which occurs, along with several others, in the Para Coto bark. It forms a pale-yellow, tasteless, crystalline powder, melting at 152° C. (305.6° F.), almost insoluble in water but readily soluble in alcohol. Employed in intestinal catarrh and as an anti-diarrhoeic, the dose being 0.1 to 0.2 Gm. (1.5 to 3 grains) for children.

PARA-CRESOL. See under Cresol.

PARAFORM.

A polymeric formaldehyde, obtained by heating an aqueous solution of formaldehyde, whereby some is volatilized and a polymeric form (paraform) remains behind. It forms a white crystalline powder which is insoluble in water. Recommended as an intestinal antiseptic.

PARA-MONO-CHLOR-PHENOL. See under Chlorphenol.

PARA-OXY-ETHYL-ACETANILIDE. See Phenacetine.

PARA-OXY-METHYL-ACETANILIDE. See Methacetine.

PARA-TOLYL-DIMETHYL-PYRAZOLON. See Tolypyrin.

PASTE, PEPTON. See Pepton-Paste.

PASTE, SERUM. See Serum Paste.

PASTE, SULPHURIC ACID. See Sulphuric Acid Paste.

## PELAGIN.

A proprietary remedy for sea sickness, said to be a solution of antipyrine, caffeine and cocaine.

PELLETIERINE, (Punicine).  $C_8H_{15}NO$ .

One of several alkaloids obtained from the root-bark of the *Punica granatum*. It is a colorless liquid, soluble in 20 parts of water, readily in all proportions in alcohol and ether. With acids it unites to form crystalline salts, among which the *tannate* is most frequently employed.

## PELLETIERINE TANNATE.

A yellowish, tasteless, amorphous powder, insoluble in water, soluble in 80p. of alcohol, and readily in diluted acids. Prompt and innocuous tænicide in doses of 1.5 Gm. (23 grains) followed by a purgative.

PENTAL.  $(CH_3)_2C.CH.CH_3$ .

*Synonyms* : Trimethyl-ethylene ; b-Isoamylene.

This hydrocarbon is prepared by distilling fusel-oil with zinc chloride, and then treating the distillate (amylene) with concentrated sulphuric acid. Pental is a colorless liquid of sp. gr. 0.6733 (0° C.), boiling at 38° C. (100.4° F.), insoluble in water, miscible with alcohol (9%), ether and chloroform in all proportions. Employed as anæsthetic in dental surgery.

## PEPSIN, PLANT. See Papain.

## PEPTON-PASTE.

Recommended as a substitute for collodion in securing gauzes or bandages to the skin, free from any irritating or contractile properties. The dried varnish-like cuticle may be removed by washing with water.

## PERCIRIN.

An alkaloid obtained from the bark of *Geissospermum laeve*, by exhausting with boiling alcohol, evaporating to an extract and treating the residue with soda and ether. Forms a white, amorphous powder, slightly soluble in water, readily soluble in alcohol and ether. With acids it yields crystallizable soluble salts; among those usually employed are the *hydrochloride* and *valerianate*. Percirin is recommended as a tonic and antifebrile, 0.5 to 2 Gm. (8 to 30 grains), being administered about four hours before the expected attack.

## PHEDURETIN.

A phenol derivative, composition not given; tasteless white crystals, insoluble in water. Doses of 0.5 to 1 Gm. a powerful diuretic.

PHENACETINE.  $C_6H_4.OC_2H_5.NHCOCH_3$ .

*Synonyms* : Para-Acet-Phenetidine ; Para-Acet-Amido-Phenetol ; Para-Oxyethyl-Acetanilide.

This compound, which chemically is closely connected with acetanilide and methacetine, is prepared as follows:

Sodium Para-Nitrophenol, (which is prepared by the action of nitric acid on phenol and subsequent treatment of the product (para) with sodium hydrate), is ethylated by heating with ethyl bromide under pressure; this product (p-nitrophenetol) is reduced by nascent hydrogen to p-amidophenetol, which by prolonged boiling with glacial acetic acid yields phenacetine. This forms colorless, tasteless, inodorous, scaly crystals, melting at 135° C. (275° F.), soluble in 1,500 parts of cold, and 80 parts of boiling water and in about 16 parts of alcohol. Employed as an antipyretic and antineuralgic in doses of 0.5 to 1 Gm. (8 to 15 grains).

*IODOPHENINE*,  $C_{20}H_{16}I_2N_2O_4$ , is a derivative of phenacetine, obtained by the combination of two molecules of the latter with three molecules of iodine. Phenacetine is dissolved in glacial acetic acid, then diluted with water and hydrochloric acid; to this is added an aqueous solution of iodine in potassium iodide until no further precipitation occurs. If the operation is carried on in a hot solution, iodophenine is obtained in brown needle-like crystals, which have an odor resembling that of iodine, melting at 130° to 131° C. (266 to 267.8° F.), soluble in alcohol, and when mixed or heated with water iodine is liberated. This compound contains iodine (51%) in a very loose state of combination; hence it is not adapted for internal use because of its irritating properties.

*METHYL-PHENACETINE*,  $C_6H_4(OC_2H_5)N(CH_3)CH_2CO$ , is prepared by the action of methyl iodide on phenacetine-sodium, the latter resulting from the action of metallic sodium on a solution of phenacetine in boiling xylol. This salt forms colorless crystals, melting at 40° C. (104° F.), only slightly soluble in water, but readily so in alcohol. Employed as a hypnotic.

**ETHYL-PHENACETINE**,  $C_6H_4(OC_2H_5)N(C_2H_5)CH_2CO$ , a homologue of the above methyl-compound, is prepared in like manner by the action of ethyl iodide on phenacetine-sodium. This forms a yellow colored oil, boiling at  $330^\circ$  to  $335^\circ C.$  ( $626^\circ$  to  $635^\circ F.$ ), almost insoluble in water, readily so in alcohol and ether. Possesses hypnotic properties, but to a lesser degree than the above methyl derivative.

**FORMYL-PHENETIDINE**, or **PARA-OXYETHYL-FORMANILID**,  $C_6H_4(OC_2H_5)NH.CO.H$ , is prepared by heating a mixture of hydrochlorate of p-phenetidine, anhydrous sodium formate and formic acid, the reaction product being crystallized from water. Colorless, inodorous, tasteless crystals, melting at  $60^\circ C.$  ( $140^\circ F.$ ), slightly soluble in cold water, readily in hot water, alcohol and ether. Recommended as an antiseptic.

**LACTOPHENINE**, or **LACTYL-PHENETIDINE**, is produced by the action of lactic acid on phenetidine in presence of dehydrating agents. It forms a crystalline powder of bitter taste, more soluble than phenacetine, employed as an antipyretic and sedative in doses of 0.5 to 1 Gm. (8 to 15 grains).

**SEDATIN**, or **VALERYL-PHENETIDINE**, is obtained by the action of valeric acid on p-amido-phenetol. Recommended as an antipyretic and antineuralgic. The selection of the term "sedatin" is unfortunate, since this was formerly applied as a synonym for antipyrine.

## PHENATOL.

Said to be a mixture of acetanilid, caffeine, sodium bicarbonate, carbonate, sulphate and chloride.

Recommended as an antipyretic and anodyne.

## PHENAZONE. See Antipyrine.

## *o*-PHENETIDYL-CROTONIC-ETHYL-ESTER.

This compound is formed by mixing molecular quantities of para-phenetidin ( $C_6H_4OC_2H_5NH_2$ ) and aceto-acetic ester. ( $CH_3.CO.CH_2.CO_2C_2H_5$ ); the mixture becomes turbid and quite warm, with the separation of water. By recrystallization from alcohol, the substance forms glossy white, needle-like crystals, which melt at  $53^\circ C.$  ( $127.4^\circ F.$ ), insoluble in water, readily soluble in alcohol and ether. Nothing is known concerning the medicinal properties of this substance, as it is still in the experimental stage.

## PHENOCOLL HYDROCHLORIDE. $C_6H_4 < \begin{matrix} OC_2H_5 \\ NHCO.CH_2NH_2.HCl \end{matrix}$

*Synonyms:* Amido-Acet-Para-Phenetidine-Hydrochloride; Glycocoll-Para-Phenetidine Hydrochloride.

The base phenocoll is prepared by interaction between amido-acetic-acid ester and phenetidine [ $C_6H_4(OC_2H_5)(NH_2)$ ] or by the action of chloracetylchloride on phenetidine, and subsequent treatment of the resulting mono-chlor-acet-para-phenetidine with ammonia. This base unites with acids forming salts. Phenocoll hydrochloride forms colorless needles or a crystalline powder, soluble in 16 parts of water, but the base phenocoll is precipitated upon the addition of alkalies. Because of its greater solubility and freedom from the unpleasant after effects which sometimes accompany phenacetin, it has become quite popular. Employed as an antipyretic, antirheumatic and antineuralgic, in doses of 0.3 to 1 Gm. (5 to 15 grains). Has been recommended as a specific in malarial complaints, also as an antiseptic in treatment of wounds, sores, etc., either in form of powder, 5 per cent. solutions, 10 to 20 per cent., gauze, or ointment (10 to 20%).

**PHENOCOLL CARBONATE**, [ $C_6H_4(OC_2H_5)NH.CO-CH_2NH_2$ ] $_2CO_2$ , is a colorless, almost tasteless, crystalline powder, which is quite insoluble in water. When heated to  $65^\circ C.$  carbonic acid is given off. Employed like the above, but particularly adapted as an antiseptic powder.

**PHENOCOLL ACETATE** forms bulky, crystalline needles which are soluble in 3 parts of water. This salt is adapted for subcutaneous injections.

**SALOCOLL**, or **PHENOCOLL SALICYLATE**, is a crystalline salt which is less soluble than the hydrochloride, combining the medicinal effects of phenocoll with those of salicylic acid. Employed as an antipyretic and antirheumatic in doses of 1 to 2 Gm. (15 to 30 grains).

## PHENOL. (Carbolic Acid.)

## PHENOL CAMPHOR.

*Synonym:* Camphor, Phenylated.

Crystallized carbolic acid is liquefied by heat, and in this is dissolved an equal quantity of camphor; another formula directs three times the quantity of camphor; still another directs 4 parts of camphor, 12 parts of carbolic acid, and 1 part of water.

This phenylated camphor is an oily, colorless liquid, which is insoluble in water, very soluble in alcohol, ether, chloroform, fatty and volatile oils. It is employed as an antiseptic, germicide and local anæsthetic (particularly in toothache).

#### PHENOL-CHLORINE AND BROMINE DERIVATIVES.

Para-chlor-phenol, crystalline; odor of phenol; slightly soluble in water. Ortho-brom-phenol is a violet colored liquid. Both employed in the treatment of erysipelas; 1 to 2% in ointment.

PHENOLIN. See under Cresol.

#### PHENOL-SODIO-SULPHORICINATE.

A yellowish fluid, miscible with water, consisting of a mixture of 20 parts of carbonic acid and 80 parts of sodium-sulphoricinate. Employed in angina diphtheritica, for dissolving the false membrane; applying to the parts with a hair-pencil.

PHENOPYRINE. See under Antipyrine.

PHENOSALYL. See under Cresol.

*o*-PHENYL-ACRYLIC ACID. See Cinnamic Acid.

PHENYL-BORIC ACID.  $C_6H_5-B(OH)_2$ .

Prepared by the action of phosphorus oxychloride on a mixture of boric acid and phenol in molecular proportions. It occurs as a white powder, difficultly soluble in cold water. It is employed as an antiseptic, for dressing wounds and ulcers. A one per cent. solution is sufficient to prevent putrefaction.

PHENYL-DIHYDRO-CHINAZOLINE. See Orexin.

PHENYL-HYDRAZINE-LÆVULINIC ACID. See Antithermin.

*o*-PHENYL-PROPIONIC ACID.

*Synonym:* Hydrocinnamic acid.

Obtained by the reduction of cinnamic acid by means of mercury amalgam. It occurs in colorless crystals, slightly soluble in cold, but very soluble in hot water and alcohol. Melting-point is  $47.5^\circ C$ . ( $117.5^\circ F$ .).

Hydrocinnamic acid is employed in the treatment of phthisis; the dose being 10 drops of the alcoholic solution (1 to 5).

PHENYL-SALICYLIC ACID.  $C_6H_5(OH)(C_6H_5)COOH$ .

*Synonym:* Ortho-oxydiphenyl-carboxylic acid.

This occurs as a white powder, only slightly soluble in water, more soluble in alcohol and glycerin. Phenyl-salicylic acid is employed as an antiseptic dusting powder.

PHENYL-SALICYLATE. See Salol.

PHENYL-URETHANE. See Euphorin.

PHILOPAIDIA.

A proprietary diphtheria remedy.

PHOENIXIN.  $CCl_4$ .

Another name for Carbon-Tetrachloride, a non-inflammable liquid solvent.

PHOSPHERRIN.

A mixture of ferric chloride, phosphoric acid and glycerin.

PHOTOXYLIN.

This is a nitrocellulose prepared by the action of nitric acid on wood-wool. When dissolved in a mixture of ether and alcohol (equal parts) a preparation very similar to collodion is obtained. A 3 to 5% solution of photoxylin forms a thick liquid, which leaves on evaporation a much stronger film than collodion.

PICROL.  $C_6H_2(OH)_2SO_3K$ .

*Synonym:* Di-iodo-resorcin-monosulphona te of potassium.

Obtained by the action of a solution of hydriodic and iodic acids on resorcin-monosulphona te of potassium. It forms a colorless, inodorous, very bitter, crystalline powder, which is soluble in water, glycerin, ether and collodion. Contains 52 per cent. of iodine, and is offered as a substitute for iodoform, its antiseptic powers being equivalent to those of corrosive sublimate.

**PICROPODOPHYLLIN.**

A crystalline principle obtained from the rhizome of the *Podophyllum peltatum*. It is claimed to be the active principle of podophyllotoxin.

**PIPERAZIDINE.** See Piperazine.

**PIPERAZINE.**  $\text{NH}-(\text{CH}_2)_4-\text{NH}$ .

*Synonyms:* Diethylene-diamine; Ethylen-imine; Piperazidine; Spermine (Spermine).

By the interaction between ethylene bromide and aniline in the presence of a solution of potassium hydrate, di-phenyl-piperazine is formed; this is converted into piperazine by subsequent treatment with nitric or sulphuric acid and distillation of the resulting product with alkalis. Piperazine forms white, deliquescent scales, which melt at  $104^\circ$  to  $107^\circ$  C. ( $219.2^\circ$  to  $224.6^\circ$  F.), boils at  $145^\circ$  C. ( $293^\circ$  F.) and is very soluble in water. Because of its property of uniting with uric acid and forming a soluble compound, it is employed as a remedy in treatment of uræmia, rheumatism and gout. Dose 1 Gm. (15 grains) dissolved in about 1 pint of carbonated water. Sometimes given together with phenocoll, when about 1 Gm. of each is dissolved in a pint of carbonated water, and the two solutions mixed.

**PIPERINE.**  $\text{C}_{17}\text{H}_{19}\text{NO}_3$ .

An alkaloid which occurs in the fruits of *Piper nigrum*, *Schinus Mollis*, etc. Obtained synthetically by heating solutions of piperidin and piperic acid in benzol. Forms colorless, almost tasteless, monoclinic prisms, which melt at  $123^\circ$  to  $129^\circ$  C. ( $262.4^\circ$  to  $264.2^\circ$  F.), slightly soluble in water and soluble in 3) parts of cold alcohol. Piperine which is contaminated with resin possesses a more or less pungent taste. Employed as antiperiodic and antipyretic in doses of 0.06 to 0.64 Gm. (1 to 10 grains).

**PIPERONAL (OR HELIOTROPIN.)**  $\text{C}_8\text{H}_8\text{O}_3$ .

Piperine is converted into potassium piperate by boiling with its equal weight of potassium hydrate and 5 parts of alcohol in a flask with inverted condenser; on cooling, the crystalline mass that separates is washed with alcohol and crystallized from boiling water. One part of potassium piperate is dissolved in 50 parts of hot water, adding slowly in portions an aqueous solution of 2 parts of potassium permanganate, shaking constantly; a soft mass separates, which is strained off and washed with water until free from heliotrope odor. The mixed liquids are distilled, collecting the first distillate separately, because of the presence of the greater portion of the piperonal, which crystallizes out on exposure to cold, while from the latter and weaker distillate it is removed by agitating with ether. Piperonal forms small white crystals soluble in alcohol and ether, insoluble in cold water. Employed as an antiseptic and antipyretic in doses of 0.5 to 1 Gm. (8 to 15 grains). Because of its heliotrope odor it is employed largely in perfumery.

**PIXOL.** See under Cresol.

**PODOPHYLLOTOXIN.**

An amorphous principle obtained from podophyllin (resin) by extraction with chloroform and precipitation with ether. Forms a white amorphous powder soluble in hot water, dilute alcohol, chloroform and ether. Podophyllotoxin is the active constituent of the mandrake root and its resin (podophyllin), the latter containing 20 to 3) per cent. of podophyllotoxin. This principle is very active and should be employed with caution; dose 0.001 to 0.01 Gm. (1-64 to 1-6 grain).

**POLYSOLVE.** See Sodium Sulpho-ricinate.

**POTASSIUM SALTS.**

Only the most important of the newer preparations are enumerated.

**AURO-CYANIDE.**  $\text{KAuCN}_4$ . Forms colorless, very soluble crystals, which are employed subcutaneously.

**CANTHARIDATE.**  $\text{C}_{10}\text{H}_{14}\text{K}_2\text{O}_8+2\text{H}_2\text{O}$ . Obtained by neutralizing cantharidin with potassium hydrate and evaporating to dryness. It forms a white, very soluble crystalline mass, recommended by Liebreich in form of subcutaneous injections in treatment of tuberculous (v. Cantharidin)

**COBALTO-NITRITE.**  $\text{K}_5\text{CO}_2(\text{NO}_2)_2+2\text{H}_2\text{O}$ . Minute yellow crystals which are slightly soluble in water, insoluble in alcohol. Employed in dyspepsia, cardiac albuminuria, etc. Dose is 0.032 Gm. ( $\frac{1}{2}$  grain).

**DITHIOCARBONATE.**  $\text{K}_2\text{COS}_2$ , is prepared by interaction between boiling solutions of carbon disulphide and potassium hydrate. It forms a reddish, deliquescent salt, soluble in alcohol and water. Employed in skin diseases as 5 per cent. ointment or solution.

**OSMATE** forms a red, soluble, crystalline powder. It is used in combination with bromides in treatment of epilepsy, subcutaneously for neuralgia and goitre. Dose, 0.001 Gm. (1-64 grain).

**SOZOIODOL.**  $C_6H_9I_2(OH)SO_3K+2H_2O$ . Forms colorless prisms, which are soluble in 84 parts of water and 200 parts of alcohol. Employed in skin diseases, either as a dusting-powder (3%) diluted with talcum, or in ointments (3%).

**TELLURATE.**  $K_2TeO_4$ . A white crystalline salt, soluble in water. Employed in phthisis for arresting night sweats.

**POWDER, SERUM.** See Serum Powder.

**PROPYLAMINE.**  $CH_3-CH_2-CH_2-NH_2$ .

This base should not be confused with trimethylamine  $(CH_3)_3N$ . Propylamine occurs in colorless crystals of strong ammoniacal odor, melting at  $50^\circ C$ . Recommended in doses of 2 to 4 Gm. per day in treatment of chorea. Best administered with a syrup of peppermint as corrigent.

**PUNICINE.** See Pelletierine.

**PYOKTANIN (blue).**  $C_{24}H_{28}N_3Cl$  and  $C_{25}H_{30}N_3Cl$ .

*Synonyms:* Pyoktaninum cæruleum; Methyl-violet.

The methyl violet of commerce (a dye stuff) is a mixture of the hydrochlorides of penta and hexa-methyl-para-rosaniline, which forms a very soluble, blue, crystalline powder. Employed as an antiseptic in surgery in the same dilutions as given under yellow pyoktanin (q. v.) It has been employed with success in the treatment of diphtheria, in which the membranes have been painted with a warm saturated solution.

**PYOKTANIN (yellow).**  $C_{17}H_{24}N_3OCl$ .

*Synonyms:* Pyoktaninum aureum; Auramine; Imido-tetramethyl-di-p-amido-diphenyl-methane.

Yellow pyoktanin, or auramine, is a yellow dye obtained by the interaction between tetramethyl diamido-benzophenone, ammonium chloride and zinc chloride at  $150^\circ C$ . It forms a bright yellow powder which is almost insoluble in cold, but very soluble in hot water, also soluble in alcohol. Auramine is employed as an antiseptic for ophthalmic purposes, and in surgery in aqueous solutions (1 to 4 : 10,000), as an antiseptic dusting-powder (1 to 2%) and ointment (2 to 10%).

**PYRETINE.**

Found by Walter to consist of a mixture of acetanilid 58.7 parts, caffeine 6.74 parts, sodium bicarbonate 19.5 parts, and calcium carbonate 13.5 parts. Another analyst finds potassium bromide present. Recommended as an antipyretic.

**PYRIDINE.**  $C_5H_5N$ .

A liquid base which is formed by the dry distillation of nitrogenated organic substances, being found in Dippel's animal oil and coal tar oil. Pure pyridine is a colorless liquid, of peculiar empyreumatic odor, pungent taste, boiling at  $117^\circ C$ . ( $242.6^\circ F$ ), miscible with water, with acids forms salts, being the basis of several natural alkaloids. Pyridine is employed in asthma, from 3 to 5 Cc. being poured on a plate and placed in the room with the patient. Internally, in doses of 3 drops, it acts as a cardiac stimulant.

**PYRODINE.** See Hydracetine.

**PYROGALLOPYRINE.** See under Antipyrine.

**PYROZONE.**

A name given to represent absolute anhydrous  $H_2O_2$ , the active part of that which was formerly called Peroxide of Hydrogen; hence the 3% portion of Aqua Hydrogenii Dioxidi, U. S. P.

The Greek word "pyr" and the word "ozone" were combined to describe the action resulting from the contact of well diffused animal organic matter, like silk or camel's hair with the thick syrupy fluid of pure  $H_2O_2$ . After such articles are moistened with this active principle and then slightly warmed on a steam bath, they ignite and burn furiously, as substances do in oxygen, presumably producing both fire and ozone; therefore true  $H_2O_2$  was called Pyrozone.

**PYROZONE 3% SOLUTION** is an aqueous solution of  $H_2O_2$  of correct pharmacopœial strength. The manufacturers claim that it is more stable than ordinary products of the U. S. P. process, that it is free from barium and other earthy salts and contains only 1-20 of 1% of acidity.

**PYROZONE 5% SOLUTION ETHEREAL**, is a surgical antiseptic and cleansing bleacher for tooth cavities prior to filling. For external use only.



**PYROZONE 25% SOLUTION ETHEREAL**, is employed in surgery, dermatology and dentistry as an antiseptic and caustic in a new sense of that term; it destroys pathological cells and apparently does not destroy physiological cells, and has been found by dentists to be a prompt bleacher for teeth discolored with organic matter. For external use only.

**QUEBRACHIN.**  $C_{21}H_{26}N_2O_3$ .

One of six alkaloids found in the bark of *Aspidosperma quebracho*. Occurs in pale yellow needles, insoluble in water and but slightly soluble in alcohol and ether. With acids it forms crystalline soluble salts, the *hydrochloride* being most frequently employed. Used internally and subcutaneously in dyspnoea; dose 0.05 to 0.1 Gm. (3-5 to  $1\frac{1}{2}$  grains).

**QUININE ARSENITE.**  $C_{20}H_{24}N_2O_2 \cdot H_3AsO_3 + 2H_2O$ .

Obtained by dissolving 34 parts of freshly precipitated quinine in a hot aqueous solution of 10 parts of arsenous acid, evaporating at 20° C. (68° F.) and crystallizing. This is a white crystalline powder, containing 69 per cent. of quinine (theoretically), slightly soluble in cold and very soluble in hot water. Employed as antiperiodic in doses 0.035 to 0.03 Gm. (1-12 to  $\frac{1}{2}$  grain).

**QUININE DI-HYDROCHLORIDE CARBAMATE.**  $(C_{20}H_{24}N_2O_2)_2HCl + CO(NH_2)_2HCl$ .

*Synonyms:* Chininum amidato-bichloratum; Chininum bimuriaticum carbamidatum.

This double salt is obtained by dissolving molecular quantities of quinine hydrochloride and urea chloride  $(CO(NH_2)_2 \cdot HCl)$  in boiling water and crystallizing. Forms colorless, soluble, crystals, containing 70 per cent. of quinine. Especially adapted for subcutaneous injections.

**QUININE FERRI-CHLORIDE.**

This forms dark-brown scales or reddish-brown, hygroscopic powder soluble in water and alcohol. Recommended as hæmostatic for external and internal use; externally dusted over the bleeding surface; used in a 2% solution in uterine hæmorrhage.

**QUININE HYDRO-CHLOR-SULPHATE.**  $(C_{20}H_{24}N_2O_2)_2HCl \cdot H_2SO_4 + 3H_2O$ .

Quinine hydrochloride and bisulphate are dissolved, in molecular proportions, in warm water, evaporated and crystallized. Colorless crystals, soluble in 1 part of water; recommended for subcutaneous injection.

**QUININE SALICYLATE.**  $C_{20}H_{24}N_2O_2 \cdot C_7H_6O_3 + H_2O$ .

An alcoholic solution of freshly precipitated quinine is saturated with an alcoholic solution of salicylic acid and crystallized, or 10 parts of quinine sulphate and  $3\frac{1}{2}$  parts of sodium salicylate are added to 120 parts of water and heated to boiling; on cooling the quinine salicylate crystallizes out. Forms fine, white needles, soluble in 225 parts of water. Employed as an antipyretic in typhus; also used in rheumatism and gout in doses of 0.1 to 0.5 Gm. ( $1\frac{1}{2}$  to 8 grains).

**QUININE TANNATE.**

Obtained by precipitating an aqueous solution of a quinine salt with tannic acid. Forms a yellowish-white amorphous powder, of only a slightly bitter and astringent taste, containing 3 to 32% of quinine, and only very slightly soluble in water. Employed in diarrhoea, whooping-cough, etc., in doses of 0.2 to 0.5 Gm. (3 to 8 grains).

**b-RESALGIN (RESORCYLALGIN).**

This is obtained by the action of potassium resorcyate on antipyrin, the former being obtained by heating resorcin 1 part and potassium bicarbonate 5 parts, together with 10 parts of water. Resalgin forms crystalline needles, which melt at 115° C. (239° F.), soluble in 150 parts of cold and 20 parts of boiling water, and readily soluble in alcohol, ether and chloroform. Nothing definite is known concerning its medicinal properties and dose.

**RESOL.** See under Cresol.

**RESOPYRIN.**  $C_{11}H_{12}N_2O + C_6H_4(OH)_2$  (?).

A solution of 11 parts of resorcin in 33 parts of water is mixed with a solution of 30 parts of antipyrin in 90 parts of water, the resulting precipitate (resopyrin) is collected and recrystallized from alcohol. Forms colorless crystals, insoluble in water and soluble in alcohol. The medicinal properties of this body have not been determined.

**RESORBIN.**

This is proposed as an ointment base, being prepared by emulsifying almond oil and water with yellow wax, gelatine and soap; it is said to possess great penetrating power, but is open to the objection that ointments prepared with it do not keep.

**RESORCIN.**  $C_6H_4(OH)_2$ .

*Synonyms*; Resorcinol; Meta-dihydroxy-benzene.

This is obtained on fusing many resins (umbelliferous), also m-phenol-sulphonic acid, also m-benzene-disulphonic acid, with potash; the fused mass is acidified with hydrochloric acid and the resorcin extracted with ether. For description see U.S.P. Internally it is employed in gastritis, gastric ulcers, affections of the larynx generally; dose, 0.2 to 0.5 Gm. (3 to 8 grains). Externally in diphtheria as a resorcin glycerole (10%) for topical application, as an ointment (5 to 25%) in various skin diseases.

**RESORCINOL.**

This term "resorcinol" has been applied by chemists to resorcin, in compliance with the rules of modern chemical nomenclature. Unfortunately, the same title has been given to an amorphous, brown powder which is prepared by triturating together equal parts of resorcin and iodoform. It is recommended as an application to gangrenous sores, ulcers, chancres, etc.; diluted with starch it is used as a dusting powder (5%); also as ointment of 5 to 15% strength.

**RETINOL.** (CODOL.)

Obtained as a product of the destructive distillation of resin (colophony). Retinol forms a yellowish, fluorescent, oily liquid of sp. gr. 0.900, boiling between  $240^\circ$  to  $280^\circ$  C. ( $464^\circ$  to  $536^\circ$  F.). Employed as a solvent for various organic bodies as iodol, aristol, camphor, cocaine, codeine, phenol, phosphorus, creosote, etc.

**RHEIN.** See Chrysophanic Acid.

**RHODALLIN.** See Thiosinamine.

**RUBIDIUM IODIDE.** Rb I.

Forms colorless cubical crystals which are readily soluble in water. Employed in the same instances where the potassium or sodium iodide is indicated, possessing the advantage of not causing gastric and other disturbances which usually accompany the administration of these salts in large quantities. Dose, 0.13 Gm. (2 grains).

**RUMICIN.** See Chrysophanic Acid.

**SACCHARIN.**  $C_6H_4 \begin{matrix} < \text{CO} \\ \text{SO}_2 > \text{NH} \end{matrix}$ .

*Synonyms*; Benzoyl-sulphonic-imide; Orthosulphamine-benzoic-anhydride; Gluside; Glucosimide.

Saccharin is an intensely sweet principle prepared from toluene ( $C_6H_5CH_3$ ) by first converting this into the mixture of mono-sulphonic acids, which, by the action of phosphorus pentachloride, are converted into the corresponding toluene-sulphonic chlorides. By the action of ammonia the ortho compound is converted into sulphamin benzoic acid, which by oxidation yields the above imide (Saccharin). The pure ortho compound forms a white crystalline powder, which possesses 500 times the sweetening power of cane sugar; it is soluble in about 400 parts of water ( $15^\circ$  C.), more so in alcohol and glycerin (1:30), readily soluble in water in presence of alkalies ( $NaHCO_3$ ). Mixed with water and neutralized with sodium bicarbonate, it forms the soluble sodium salt, "soluble gluside" or "soluble saccharin." The chief use of saccharin is as a sweetening agent in the food of diabetic patients. A syrup of saccharin may be prepared by dissolving saccharin 10 Gm., sodium bicarbonate 12 Gm., in 1,000 Cc. of water. Syrup of saccharin may be employed in many mixtures where cane-sugar syrup is inadmissible.

**SALACETOL.**  $CH \begin{matrix} < \text{OH} \\ \text{COOCH}_2\text{COCH}_3 \end{matrix}$ .

*Synonym*; Salicyl-Acetol.

A compound differing from salol in the replacement of the phenyl group ( $C_6H_5$ ) by the acetone radical ( $CH_2-CO-CH_3$ ); introduced as a substitute for salol in order to avoid the elimination of phenol in the organism. It is prepared by interaction between monochlor acetone and sodium salicylate. Forms fine needle-like crystals or scales, melting at  $71^\circ$  C. ( $159.8^\circ$  F.), insoluble in cold water, slightly soluble in cold alcohol, freely soluble in hot alcohol, ether and chloroform. By action of alkalies it yields up its salicylic acid (about 71%). Salacetol is employed in all instances where salol is indicated, in doses of 2 to 3 Gm. (30 to 45 grains).

**SALACTOL.**

A preparation consisting of the sodium salts of salicylic and lactic acids has been introduced under this name, and when dissolved in a 1% solution of hydrogen peroxide it is recommended as an efficient remedy for diphtheria. The solution is applied to the throat with a brush every four hours, and in the intervals the solution is used as a gargle. It is also stated to act as a prophylactic.

SALICYL-ACETOL. See Salacetol.

SALICYL-PHENETIDINE. See Malakin.

SALICYL-*p*-PHENETIDINE. See Saliphen.

SALICYLIC ALCOHOL. See Saligenin.

SALIGENIN. (Salicylic alcohol.)  $C_6H_4(OH)CH_2OH$ .

An oxy-benzoyl-alcohol, obtained by the action of acids or ferments (emulsin, saliva, etc.) on salicin, a glucoside. This same reaction takes place in the human organism when salicin is taken internally, yielding, however, only 43 per cent. of saligenin. A dose of 12 Gm. (3 drachms) of salicin corresponds to about 4.2 Gm. (60 1-3 grains) of saligenin. It will be seen that saligenin, which constitutes the activity, is an excellent substitute for salicin in the treatment of malaria, rheumatism, typhus, etc. Saligenin crystallizes in colorless scales or needles, melting at  $86^{\circ}C.$  ( $186.8^{\circ}F.$ ), of a slightly bitter taste, soluble in alcohol and water. It is now prepared synthetically through the condensation of phenol with formaldehyde.

SALINAPHTHOL. See Betol.

SALIPHEN.  $C_6H_4$   $\left\{ \begin{array}{l} OC_2H_5 \\ NH.C_6H_4(OH)CO. \end{array} \right.$

*Synonyms*: Salicyl-*p*-phenetidine.

Obtained by the action of salicylic acid on phenetidine in the presence of phosphorus trichloride. Forms colorless crystals, melting at  $139.5^{\circ}C.$  ( $283^{\circ}F.$ ), insoluble in water, but soluble in alcohol. Its slight antifebrile action has not brought it into any favor.

SALIPYRINE. See under Antipyrine.

SALICYLAMIDE.  $C_6H_4$   $\left\{ \begin{array}{l} OH \\ CONH_2. \end{array} \right.$

This compound differs from salicylic acid in the replacement of the hydroxyl of the carboxyl group by the amido radicle ( $NH_2$ ). Obtained by the action of concentrated ammonia on salicylic-methyl-ester (oil of wintergreen), yielding colorless, inodorous and tasteless crystals, melting at  $138^{\circ}C.$  ( $280.4^{\circ}F.$ ), soluble in 250 parts of water, readily so in alcohol and ether. Salicylamide possesses the same therapeutical properties as salicylic acid, having the advantage of being tasteless, more soluble and acting more readily in smaller doses. Dose, 0.13 to 0.3 Gm. (2 to 5 grains).

SALICYL-ANILID. See Salifebrin.

SALICYL-SULPHURIC ACID. See Sulpho-Salicylic Acid.

SALICYLIC NAPHTHYLIC ETHER. See Betol.

SALICYLIDEN PHENETIDINE. See Malakin.

SALIFEBRIN, OR SALICYLANILID.

A preparation of salicylic acid and acetanilid, in which both constituents are probably fused together and powdered. Forms a white powder, soluble in alcohol, insoluble in water. Recommended as an antineuralgic and antipyretic.

No authoritative dose has been given.

SALOCOLL. See under Phenocoll.

SALOL.  $C_6H_4$   $\left\{ \begin{array}{l} OH \\ COO C_6H_5. \end{array} \right.$

*Synonym*: Phenyl Salicylate.

This phenyl ester of salicylic acid is obtained by the action of sodium salicylate on sodium phenylate in the presence of phosphorus oxychloride or phosgene. The reaction product is thoroughly washed with water and crystallized from alcohol. For description see U. S. P. Salol, when taken, passes unabsorbed through the stomach into the intestines, where, under the influence of alkaline secretions, it is split up into salicylic acid and phenol; to this dissociation its value as an intestinal disinfectant in case of dysentery, cholera, etc., is due. In view of this peculiarity, salol is employed for coating pills\* which are intended to act only in the intestines. As an antirheumatic its dose is 1 to 2 Gm. (15 to 30 grains), in diarrhoea and intestinal troubles of children 0.13 to 0.19 Gm. (2 to 3 grains); as an antiseptic and deodorant externally in the form of dusting-powder (1:3), being diluted with starch or talcum, ointment or collodion (4: to ether 4 and collodion 30).

\* COBLENTZ' Handbook of Pharmacy, p. 329.

**SALOL CAMPHOR** is made by mixing 3 parts of salol with 2 parts of camphor, both in fine powder, fusing and filtering the product. It forms a colorless, oily liquid, insoluble in water, soluble in ether, chloroform and the oils; by the action of light and air it undergoes decomposition. Employed locally as an antiseptic.

**DI-iodo-SALOL**,  $C_6H_2I_2(OH)CO_2C_6H_5$ , the phenyl ester of di-iodo-salicylic acid, is obtained by the condensation of di-iodo-salicylic acid with phenol. Forms an inodorous, tasteless, crystalline powder, melting at  $133^\circ C.$  ( $271.4^\circ F.$ ); employed in treatment of skin diseases

**NITRO-SALOL**,  $C_6H_4(OH)CO_2.C_6H_4NO_2$ , salicylic-p-nitro phenyl-ester, is obtained by condensation of salicylic acid with p-nitrophenol. Forms a yellowish, inodorous and tasteless crystalline powder, melting at  $143^\circ C.$  ( $298.4^\circ F.$ ), insoluble in water, and soluble in alcohol and ether. In the intestines it is split up into its constituents. Employed in the manufacture of salophen.

**SALOPHEN**.  $C_6H_4(OH)CO_2.C_6H_4NH.COCH_3$ .

*Synonyms:* Acetyl-p-amido-phenyl salicylate; Acet-p-amido-salol.

This body was introduced as a substitute for salol in order to avoid effects resulting from the liberation of phenol in the organism, salophen being split up in the intestines into salicylic acid and acetyl p-amidophenol. Obtained by the reduction and acetification of salicylic-p-nitro-phenol (nitro salol),  $C_6H_4(OH)CO_2.C_6H_4NO_2$ , yielding colorless crystals melting at  $187^\circ$  to  $188^\circ C.$  ( $368.6^\circ$  to  $370.4^\circ F.$ ), insoluble in water, soluble in alcohol and ether, the alcoholic solution being colored violet by ferric chloride. Employed as an antineuralgic and antirheumatic in doses of 1 to 2 Gm. (15 to 30 grains).

**SALUBRINE**.

A composition hailing from Sweden, and containing, according to Hager, 2 per cent of anhydrous acetic acid, 25 per cent. of acetic ether, 50 per cent. of alcohol, and the balance of distilled water. It is antiseptic, astringent and hæmostatic, and is used, diluted with water, as a gargle, and on compresses.

**SALUMIN** (insoluble).  $(C_6H_4(OH)COO)_3Al_2+3H_2O$ .

*Synonym:* Aluminum salicylate.

Obtained as an insoluble precipitate by interaction between solutions of a salt of aluminum and sodium salicylate. Forms a reddish-white, insoluble powder, which is employed as a dusting-powder in catarrhal affections of the nose and pharynx.

**SALUMIN** (soluble).  $(C_6H_4(OH)COO)_3Al_2+2H_2O$ .

*Synonym:* Aluminum-ammonium salicylate.

On treating "salumin" with ammonia "soluble salumin" is obtained. Employed for same purposes as Salumin.

**SANATOL**. See under Cresol.

**SANGUINAL**.

Prepared by defibrinating fresh blood and evaporating to a pilular extract, in which condition it is made up into pills, each of which is said to represent 5 Cc. of fresh blood. The composition of the extract is said to be 46 parts of peptonized muscle albumin, 44 parts of blood salts and 10 parts of oxyhæmoglobin.

**SANTONINOXIM**.  $C_{15}H_{18}O_2.NOH$ .

Santonin 5p., hydroxylamine hydrochlorate 4p., calcium carbonate 4p., and alcohol 50p., are boiled from 6 to 7 hours in a flask with reflux condenser,\* filtering and pouring into 5 times its volume of water, whereby santoninoxim separates. Forms white crystals, insoluble in cold water, soluble in alcohol, ether, fats and fatty oils, melts at  $216^\circ$  to  $217^\circ C.$  ( $421.8^\circ$  to  $422.6^\circ F.$ ). Because of its comparatively non-toxic nature it is preferred to santonin as an anthelmintic; dose for children from 2 to 3 years 0.06 Gm. (1 grain), from 4 to 6 years 0.09 Gm. ( $1\frac{1}{2}$  grains), from 6 to 9 years 0.13 Gm. (2 grains) in two doses about one hour apart, followed by a purgative.

**SAPOCARBOL**. See under Cresol.

**SAPROL**. See under Cresol.

**SCOPOLAMINE**. See Hyoscine.

**SEDATIN**. See under Phenetidine.

## SERUM PASTE.

The freshly prepared serum from ox-blood is thoroughly mixed with 25 per cent. of zinc oxide and sterilized at 70° C. in a thermostat. When painted over denuded or diseased surfaces, it dries readily, leaving a film which may be readily removed by washing with water.

## SERUM POWDER.

A mixture of freshly prepared serum and zinc oxide (25%) is spread on glass plates and dried, then finely powdered and sterilized at 100° C. Recommended as an antiseptic dusting-powder to be employed alone or mixed with iodoform.

## SODIUM SALTS.

Only the most important of the new salts are enumerated.

**ÆTHYLATE**,  $\text{CH}_3\text{CH}_2\text{ONa}$ , is formed by the action of metallic sodium upon absolute alcohol. It forms a white powder, of caustic taste, soluble in alcohol and water. Employed in treatment of skin diseases, as psoriasis, lupus, etc., painting the parts with a 10 per cent. aqueous solution.

**ANISATE**,  $\text{C}_6\text{H}_4(\text{OCH}_3)\text{COONa}$ . Anisic acid is obtained by oxidizing anethol (main constituent of anise oil) with a mixture of sulphuric acid and potassium bichromate; the sodium salt is made by neutralizing an aqueous solution of this acid with sodium carbonate, evaporating and crystallizing. Sodium anisate forms a soluble crystalline powder, which is recommended as a substitute for sodium salicylate, being an antirheumatic and antipyretic.

**AURO-CHLORIDE**,  $\text{AuCl}_3\cdot\text{NaCl}\cdot 2\text{H}_2\text{O}$ . A double salt of gold and sodium chloride, forming a golden-yellow hygroscopic powder, readily soluble in water and partly in alcohol. Employed in syphilitic diseases, the dose being 0.016 to 0.06 Gm. ( $\frac{1}{4}$  to 1 grain).

**CHLOROBORATE** is obtained by reaction between boron trichloride and sodium hydrate. It forms a soluble white crystalline powder, possessing powerful antiseptic properties.

**DI-IODO-SALICYLATE**,  $[\text{C}_6\text{H}_3(\text{OH})\text{I}_2\cdot\text{COONa}]_2\cdot 5\text{H}_2\text{O}$ . Diiodosalicylic acid is obtained by the action of iodine and iodic acid on salicylic acid in alcoholic solution; the sodium salt of this acid is obtained by neutralization with sodium carbonate. This salt forms white crystalline scales, which are soluble in 50 parts of water. Employed as an analgesic, antipyretic and antiseptic in doses of 0.5 to 1 Gm. (8 to 15 grains).

**DI-THIO-SALICYLATE**, I. and II. See Di-thio-salicylic Acid.

**NAPHTHOLATE**. See Microcidin.

**PARA-CRESOTATE**. This is a fine, white, crystalline powder, of a bitter taste, soluble in 24 parts of water. It is employed as an antiseptic and antirheumatic, the daily total dose being 2 to 6 Gm. (30 to 90 grains).

**PHENOL-SULPHO-RICINATE**, is a solution of 4 parts of sodium ricinate (q. v.) in 1 part of carbolic acid. A caustic fluid recommended in treatment of diphtheria.

**SOZIODOL**. See under Soziodol.

**SILICO-FLUORIDE**,  $(\text{NaF})_2\text{SiF}_4$ . A white crystalline powder, which is only very slightly soluble in water. Employed in aqueous solution (2 : 1,000) as an antiseptic wash. c

**ICHTHYOL-SULPHONATE**. See under Ichthyol.

**SULPHO-RICINATE**, (Solvin, Polysolve). By the action of concentrated sulphuric acid on the triglycerides of the fatty acids, or the fatty acids themselves, sulphoricinic acid is formed; this on neutralization with sodium hydrate gives the above named salt. This is a brownish, syrupy liquid, which is soluble in alcohol and water. Employed as a solvent for iodine, iodoform, etc.

**SULPHOSALICYLATE**.  $\text{C}_6\text{H}_3(\text{OH})\text{COOH} < \begin{matrix} \text{COOH} \\ \text{SO}_3\text{Na} \end{matrix}$ . Salicyl sulphonic acid is obtained by the action of sulphuric acid on salicylic acid; this product is then only partly neutralized with sodium carbonate, resulting in the saturation of the sulphonic-acid group only. This salt forms a white crystalline powder, of a slightly acid and astringent taste, soluble in 25 p of water and insoluble in alcohol and ether. Proposed as a substitute for sodium salicylate.

**THIOPHENE-SULPHONATE**,  $\text{C}_4\text{H}_3\text{S}-\text{SO}_3\text{Na}$ , is obtained by neutralizing thiophene-sulphonic acid with sodium carbonate. It is a white crystalline powder, of unpleasant odor, soluble in water, and contains 33% of sulphur. Employed in prurigo, as a 5 to 10% ointment.

*SULPHOTUMENOLATE.* See Tumenol.

*SULPHO-THIOPHENE.* See Thiophene Sulphonate.

*TELLURATE.* See Potassium Tellurate.

### SODIUM SULFOCAFFEATE.

Since the introduction of the sulpho. group decreases the medicinal potency in phenol groups, the same was tried here with success. Bitter, crystalline, slightly soluble in cold water; non-toxic, does not irritate the stomach. Solutions containing more than 5% are not stable. Besides above soda, lithium and strontium salts are prepared. A powerful diuretic. Dose, 1 Gm. in capsule.

### SODIUM-TUMENOL-SULPHONATE.

 See Tumenol.

### SOLANIN. $C_{42}H_{87}NO_{16}$ .

A principle which occurs in the berries, flowering tops and fruits of various solanaceous plants. Obtained from the aqueous acidulated extract of potato-sprouts by making alkaline with ammonia and shaking with ether. Solanin occurs in colorless acicular crystals, melting at 235° C. (455° F.), bitter taste, insoluble in water, and but slightly in alcohol.

Recommended in doses of 0.01 to 0.06 Gm. (1-6 to 1 grain) as an analgesic in neuralgia, also in bronchitis and asthma.

### SOLPHINOL.

A mixture of borax, boric acid and alkali sulphites. Used as an antiseptic.

### SOLUTOL.

 See under Cresol.

### SOLVEOL.

 See under Cresol.

### SOLVIN.

 See Sodium Sulpho-ricinate.

### SOMATOSE.

A preparation in which the albumenoids and nutritive constituents of flesh are converted into soluble albumoses, 5 parts of somatose representing 30 parts of beef in nutritive value. Forms a pale yellowish powder which is readily soluble in water, forming an almost odorless and tasteless solution.

Employed as a food for patients afflicted with weak digestion, being given 15 to 30 Gm. (or  $\frac{1}{2}$  to 1 ounce) in milk, cocoa or soup.

### SOZAL. $(C_6H_4(OH)SO_2)_3Al$ .

*Synonym:* Aluminum-para-phenol-sulphonate.

Obtained by dissolving aluminum hydroxide in para-phenol-sulphonic acid. Forms a crystalline powder, soluble in water, glycerine and alcohol, possesses an astringent taste and a phenol-like odor. Its aqueous solution is colored violet by ferric chloride, and precipitates albumen, soluble in excess of the latter.

Employed in solution (1%) as a wash for tubercular ulcers and purulent affections.

### SOZOIODOLIC ACID. $C_6H_2I_2(OH)SO_3H$ .

*Synonyms:* Soziodol; Di-iodo-para-phenol-sulphonic Acid.

This is obtained by the interaction between a solution of potassium para-phenol-sulphonate in dilute hydrochloric acid and a solution of potassium iodide and iodate ( $5KI+KIO_3$ ) in molecular proportions. The acid potassium salt which crystallizes out is treated with the necessary amount of sulphuric acid, whereby soziodol is liberated.

Soziodol crystallizes from water in acicular prisms with 3 molecules of water, readily soluble in water, alcohol and glycerin.

Solutions of this compound give a violet-blue coloration with ferric salts. Soziodol is employed as an antiseptic, being usually used in 2 or 3 per cent. solutions. It is also employed as a dusting-powder, containing 5 to 10 and 20% diluted with powdered French chalk or starch.

*POTASSIUM AND SODIUM SOZOIODOL*,  $C_6H_2I_2(OH)SO_3K$  (or Na)+2H<sub>2</sub>O, are obtained by saturating the soziodolic acid with either potassium or sodium carbonate and crystallizing. Of these the potassium salt is soluble in 50, and the sodium salt in 14 parts of water. The aqueous solutions of these compounds gradually darken on exposure to light. These compounds are employed in like manner to soziodolic acid.

*ZINC SOZOIODOL*,  $(C_6H_2I_2(OH)SO_3)_2Zn+6H_2O$ , forms colorless crystals, soluble in 20 parts of water; employed in medicine as the above.

*MERCURY SOZOIODOL*,  $C_6H_2I_2(OH)SO_3)_2Hg$ , forms a lemon yellow powder, obtained by interaction between concentrated aqueous solutions of soziodol sodium and mercuric nitrate. This compound is soluble in 500 parts of water, readily soluble

in a solution of sodium chloride. It is employed chiefly in the specific treatment of syphilis locally and subcutaneously. The 2.5 per cent. solution, or 1% ointment or dusting powder, is the usual strength of dispensing.

**SOZOLIC ACID.** See Aseptol.

**SPARTEINE.**  $C_{15}H_{26}N_2$ .

An alkaloid which occurs with seoparine in the tops of *Spartium scoparium*. It forms a volatile oily liquid which boils at 288° C. (550.4° F.), unites with acids, forming stable crystalline salts.

**SULPHATE.**  $((C_{15}H_{26}N_2)_2H_2SO_4 + 4H_2O)$ . Colorless, odorless, slightly hygroscopic crystals, soluble in water and alcohol.

Employed as a heart-tonic, like digitalis, in doses of 0.01 to 0.02 Gm. (1-6 to 1-3 grain).

**SPERMIN.**  $(CH_2)_2NH$ .

A base belonging to the class of leucomaines, obtained from the seminal fluid of animals. A readily soluble, crystalline substance, which is usually obtained in the form of the hydrochlorate. A 2 per cent. solution is employed subcutaneously in quantities of  $\frac{1}{2}$  to 1 Cc. (8 to 16 minims) once daily in treatment of nervous diseases complicated with anæmia.

**STERESOL.**

A brown, thick liquid, obtained by dissolving shellac 270 parts, gum benzoin 10 parts, balsam tolu 10 parts, phenol 100 parts, oil of cinnamon 6 parts, and saccharin 6 parts in alcohol sufficient to make 1,000 parts. Recommended as an antiseptic varnish for tubercular sores and various skin diseases.

**STROPHANTHIN.**  $C_{20}H_{34}O_{10}$  or  $C_{31}H_{48}O_{12}$ (?).

The active principle (a glucoside) of the seeds of the species of *Strophanthus*. Forms a white crystalline powder, melting at 185° C. (365° F.), soluble in 40 parts of water (18° C.), readily in alcohol. Strophanthin is employed as a substitute for digitalis, being free from all disturbing effects upon the respiratory centres and producing less gastric disturbance. Dose, 0.0002 to 0.0003 Gm. (1-300-1-200 grain). Very powerful; should be used with great caution. Antidotes, aconite and veratrum viride. Commercial strophanthin is quite variable in strength, hence uncertain in effect.

**STYRACOL.** See under Guaiacol.

**SULPHAMINOL.**  $C_6H_4 < \begin{smallmatrix} S \\ NH \end{smallmatrix} > C_6H_4OH$ .

*Synonym:* Thio-oxy-diphenylamine.

Obtained by boiling meta-oxy-diphenylamine with sulphur and caustic soda solution, and precipitating with a solution of ammonium chloride. Sulphaminol forms an inodorous, pale yellow powder, melting at 155° C. (311° F.), insoluble in water, soluble in alkali solutions, alcohol and glacial acetic acid. Employed as a substitute for iodoforn, used as a deodorizing antiseptic for both internal and external use; it readily breaks up, yielding phenol and sulphur. Internally employed in cystitis, dose being 0.25 Gm. (about 4 grains).

**SULPHONAL.**  $(CH_3)_2C(SO_2C_2H_5)_2$ .

*Synonym:* Di-ethyl-sulphon-dimethyl-methane.

Through a mixture of anhydrous ethyl-mercaptan ( $C_2H_5SH$ ) and acetone ( $CH_3CO-CH_3$ ), dry hydrochloric acid gas is passed, resulting in the condensation product mercaptal (di-thio-ethyl-di-methyl-methane), which on oxidation yields sulphonal. Forms colorless permanent crystals, melting at 125° to 126° C. (257° to 258.8° F.), soluble in 500 parts of cold and 15 parts of boiling water, in 65 parts of cold and 2 parts of boiling alcohol.

Employed as a valuable hypnotic in doses of 1 to 2 Gm. (15 to 30 grains).

**SULPHO-SALICYLIC ACID.**  $C_6H_3(SO_3H)(OH)COOH$ .

*Synonym:* Salicyl-Sulphuric Acid.

This is prepared by the action of fuming sulphuric acid on salicylic acid; it forms white crystals, which are soluble in water and alcohol. Employed as a substitute for sodium salicylate in treatment of articular rheumatism. This compound is a valuable reagent for proteids, albumins and peptones. An albumose or peptone is precipitated, but redissolves on boiling the solution, while albumin or globulin does not.

**SULPHO-TUMENOLIC ACID.** See Tumenol.

**SULPHURIC ACID PASTE.**

A caustic application composed of a mixture of equal parts of sulphuric acid and powdered saffron, the latter being employed because of the finely subdivided condition of the carbon yielded.

**TANNAL** (Insoluble).  $\text{Al}_2(\text{OH})_4(\text{C}_{14}\text{H}_9\text{O}_9)_2 + 10\text{H}_2\text{O}$ .

*Synonym*: Aluminum basic tannate.

Formed by precipitating a solution of an aluminum salt with a solution of tannic acid in presence of an alkali. Tannal is a brownish-yellow, insoluble powder, employed as an astringent in catarrh of the respiratory organs.

**TANNAL** (Soluble).  $\text{Al}_2(\text{C}_4\text{H}_6\text{O}_6)_2(\text{C}_{14}\text{H}_9\text{O}_9)_2 + 6\text{H}_2\text{O}$ .

*Synonym*: Aluminum tannic-tartrate.

Obtained by treating insoluble tannal with tartaric acid, yielding a brownish yellow soluble powder, which is employed for the same purpose as the above.

**TANNIGEN**.

*Synonym*: Diacetyl Tannin.

An acetic ester of tannic acid, prepared by the action of acetic anhydride on tannin dissolved in glacial acetic acid. Forms a yellowish-gray, odorless and tasteless, hygroscopic powder, insoluble in water, only slightly soluble in ether, very soluble in alcohol. Its solutions are colored blue black by ferric chloride and decomposed by alkalies. Tannigen is recommended in treatment of chronic diarrhoea, acting as an intestinal astringent, since owing to its insolubility it passes through the stomach into the intestines, where in presence of the alkaline secretions it is broken up into its constituents.

**TARTARLITHINE**.

This is an effervescent salt, the lithium analogue of cream of tartar, containing none of the additional alkaline salts common to the granular effervescent preparations. It is recommended as a uric acid solvent, in place of the other salts of lithium, for gout, rheumatism and all the manifestations of uric-acidæmia, and is presented in tablet form.

Dose: One or two of the 5 grain tablets, dissolved in a goblet of water, may be taken on a reasonably empty stomach, four times a day. Tartarlithine is intended to increase the alkalinity of the blood, by giving vegetable acid up to a point where it will contribute an alkalinity more effective than alkalies as such, for the elimination of uric acid.

**TARTARLITHINE AND SULPHUR** is prepared with equal parts of Tartarlithine and precipitated Sulphur, compressed into 5 grain tablets. Indicated in the treatment of chronic sore throat, chronic bronchitis accompanied with copious secretions; in digestive difficulties due to disordered action of the liver, which ultimately lead to lithæmia and structural lesions, in addition to many benefits as a pulmonary or intestinal disinfectant. This combination of sulphur, probably after absorption, favors the bile-producing function of the liver, since taurocholic acid normally contains a large proportion of sulphur. It is prescribed in diseases of the nails, the scalp, and generally in superficial skin diseases.

Dose: Same as Tartarlithine.

**TEREBENE**.  $\text{C}_{10}\text{H}_{16}(\text{?})$ .

This is produced by the action of concentrated sulphuric acid upon oil of turpentine and repeated distillation for purification. It consists of a mixture of camphene, cymene, borneol and terpinene. For description see U. S. P. Terebene is an agreeable antiseptic, disinfectant and deodorizer, a 5 per cent. aqueous solution forming a very serviceable surgical dressing, while its vapor is inhaled in treatment of bronchial affections and pulmonary tuberculosis. Internally, in doses of 5 to 6 drops in emulsion or tablet form, it acts as an expectorant.

**TERPIN HYDRATE**.  $\text{C}_{10}\text{H}_{18}(\text{OH})_2 + \text{H}_2\text{O}$ .

A mixture of rectified turpentine oil (4 pts.), alcohol (3 pts.) and nitric acid (1 pt.) is set aside in a shallow porcelain dish for several days; crystals of terpin hydrate separate, and these are recrystallized from 95% alcohol. For description see U.S.P. p. 404.

Employed as expectorant in bronchitis and chronic nephritis, in doses of 0.2 to 0.4 Gm. (3 to 6 grains).

**TERPINOL**.

By the distillation of terpin hydrate with dilute sulphuric acid, terpinol is obtained; this consists of a mixture of terpineol ( $\text{C}_{10}\text{H}_{17}\text{OH}$ ) an alcohol, and three terpenes ( $\text{C}_{10}\text{H}_{16}$ ), terpinene, terpineolene and dipentene. Terpinol is an oily liquid, of hyacinthine odor, boiling at  $168^\circ\text{C}$ ., sp. gr. 0.852, insoluble in water and soluble in alcohol and ether.

Employed as a bronchial stimulant in doses of 0.5 to 1 Gm. (8 to 15 grains). Terpinol is sometimes used to mask the odor of iodoform.



**TERROLINE.**

A name for a special brand of petroleum jelly.

**TERTIARY AMYL ALCOHOL.** See Amylenum Hydratum.

**TETRA-ETHYL-AMMONIUM HYDROXIDE.**  $(C_2H_5)_4N.OH.$

This forms a hygroscopic, crystalline salt, bitter taste, and very soluble in water. Recommended as a uric acid solvent, being administered in doses of 10 to 15 minims of a 10 per cent. solution.

**TETRA-HYDRO-BETA-NAPHTHYLAMINE.** See Thermin.

**TETRA-HYDRO-PARA-CHINANISOL.** See Thalline.

**TETRA-IODO-PYRROL.** See Iodol.

**TETRA-THIO-DICHLOR-SALICYLIC ACID.**  $(S_2=C_6H(Cl)(OH)COOH)_2.$

This is obtained by heating salicylic acid (27.6 p.) with sulphuryl chloride (55. p.). It forms a reddish-yellow powder, which is soluble in aqueous solutions of the alkalies. It is employed chiefly as an antiseptic dusting powder.

**TETRONAL.**  $(C_2H_5)_2.C.(SO_2C_2H_5)_2.$

*Synonym:* Di-ethyl-sulphon-di-ethyl-methane.

An analogue of sulphonal and trional, differing in the possession of four ethyl groups, while the former contains two and the latter three. The method of preparation is the same as that of sulphonal, only that di-ethyl-ketone ( $C_2H_5-CO-C_2H_5$ ) is employed in place of acetone. This compound forms colorless, crystalline scales, melting at  $89^\circ C.$  ( $192.2^\circ F.$ ), soluble in 450 parts of cold water, readily in alcohol and ether.

Tetronal is employed as a hypnotic in doses of 1 to 2 Gm. (15 to 30 grains).

**THALLINE.**  $C_9H_{10}N(OCH_3).$

*Synonym:* Tetra-hydro-para-chinanisol.

This liquid base, a chinolin derivative, is obtained by heating a mixture of para-amido-anisol, para-nitro-anisol, glycerin and sulphuric acid at  $150^\circ C.$ ; from the reaction product after being rendered alkaline, para-chinanisol is distilled off, this on treatment with reducing-agents takes up four hydrogen atoms, forming the base thalline. This forms an oily liquid of strongly basic properties, uniting with acids, forming salts.

**THALLINE SULPHATE** forms a white, crystalline powder, soluble in 7 parts of cold water, 100 parts of alcohol and insoluble in ether. Oxidizing agents, as the halogens, argentic and mercuric nitrate, ferric chloride, etc., produce a bright green color. Internally thalline sulphate is an antipyretic in doses of 0.129 to 0.5 Gm. (2 to 8 grains); externally as an antiseptic injection (4 to 8 grains to the ounce).

**THALLINE TARTRATE** is a yellowish, crystalline powder, soluble in 10 parts of cold water, almost insoluble in alcohol and ether. Employed for like purposes as the sulphate.

**THEOBROMIN.**  $C_7H_8N_4O_2.$

An alkaloid occurring in the seeds of *Theobroma cacao* (1.5%), obtained from the pressed cacao mass by mixing with slake lime and exhausting with 8% boiling alcohol. It is a white crystalline powder, slightly soluble in water, alcohol and ether. Theobromin is a homologue of caffeine, differing in containing one  $CH_2$  group less; it unites readily with alkalies forming soluble salts (see Diuretin). Because of its insolubility, theobromine is unsuitable for use, but is employed in form of a double salt. In physiological action it resembles caffeine, being, however, free from any irritating action on the nerve centers.

**THEOBROMIN-LITHIUM-LITHIUM-SALICYLATE.** See Uropherin.

**THERMIFUGIN.**  $C_9H_7N(CH_3)(OH)COONa.$

*Synonym:* Methyl-trihydro-oxychinolin-carboxylate of sodium.

This compound forms colorless crystals, which are readily soluble in water, the solution becoming brown on standing. Employed as an antipyretic in doses of 0.1 to 0.25 Gm. (1.5 to 3.8 grains).

**THERMIN.**  $C_{10}H_{11}.NH_2.$

*Synonyms:* Tetrahydro-*b*-naphthylamine.

Obtained by the action of metallic sodium on a solution of *b* naphthylamin in amyl alcohol. Thermin is a colorless liquid which with hydrochloric acid forms colorless, soluble crystals, which melt at  $287^\circ C.$  ( $486^\circ F.$ ). Recommended by Filehne as a mydriatic; further, nothing definite is known concerning this substance.

**THERMODIN.**  $\text{CO}_2\text{OC}_2\text{H}_5\cdot\text{NCOH}_4\text{OCCH}_3\cdot\text{OC}_2\text{H}_5$ .

*Synonym:* Acetyl-para-ethoxy-phenyl-urethane.

This derivative of urethane was introduced to replace neurodine, which is too powerful and rapid in its effects. Thermodin is a white crystalline powder, melts at  $86^\circ$  to  $88^\circ$  C. ( $186.8^\circ$  to  $190.4^\circ$  F.), and is almost insoluble in cold water. Recommended as a mild antipyretic, free from any unpleasant effects; given in doses of 0.32 to 1 Gm. (5 to 15 grains).

**THERMOTAXINE.**

A proprietary analgesic and antipyretic.

**THILANIN.**

This is a sulphurated lanolin, obtained by heating lanolin with sulphur at  $230^\circ$  C., and subsequently washing. It forms a brown unctuous mass, which contains about 3 per cent. of sulphur. Thilainin is employed as an application in various skin diseases.

**THIOFORM.** See Dithiosalicylic Acids.**THIOL.**

A synthetic product of hydrocarbons obtained in a similar manner to ichthyol. The tarry oils obtained by the destructive distillation of peat are heated with sulphur at high temperature, the unsaturated hydrocarbons which unite with the sulphur are removed and by the action of sulphuric acid at a low temperature converted into sulphonated compounds called thiol, which is then purified by washing and dialysis and evaporated (in vacuo) to an extractive consistency (Thiolum Liquidum) or to dryness (Thiolum Siccum).

Thiol forms either a brownish-black, thick liquid (containing about 25 per cent. of dry residue) or a brownish-black powder, which is soluble in water and alcohol. It is precipitated from its aqueous solutions by mineral acids, metallic salts or alkali earths. Thiol is employed in the treatment of various skin diseases, its discoverers recommending it as a substitute for ichthyol. As an ointment the strength usually employed is 10 to 50 per cent. The dry thiol, which is about  $2\frac{1}{2}$  times the strength of the liquid, when mixed with starch is used as a dusting powder. Internal dose is 0.13 to 0.6 Gm. (2 to 10 grains.).

**THIOLIN.** See Thiolic Acid.**THIOLINIC ACID.**

*Synonym:* Thielin.

This is prepared by boiling together linseed oil (6 p.) and sulphur (1 p.); the sulphurated linseed oil which is thereby formed is warmed with sulphuric acid until solution takes place, the oily product is poured into water and washed to remove the sulphuric and sulphurous acids.

Thiolic acid forms a dark-green mass, of extractive consistency, and a peculiar mustard-like odor, insoluble in water, but soluble in alcohol.

The sodium salt, which constitutes a soluble powder, is preferred to the above.

The medicinal properties of thiolin are similar to those of thiol and ichthyol.

**THIO-OXY-DIPHENYLAMINE.** See Sulphaminol.**THIOPHENE DI-IODIDE.**  $\text{C}_4\text{H}_2\text{I}_2\text{S}$ .

Obtained by the action of iodine and iodic acid on thiophene. Forms crystalline plates, insoluble in water, very soluble in chloroform, ether and warm alcohol, melting at  $40.5^\circ$  C. ( $104.9^\circ$  F.); containing 75.5 per cent. of iodine and 9.5 per cent. of sulphur. Thiophene di-iodide is employed externally as a powder and gauze in all instances where iodoform might be applied.

**THIORESORCIN.**  $\text{C}_6\text{H}_4(\text{OS})_2$ .

A sulphur derivative of resorcin, obtained by fusing one molecule of resorcin with two molecules of sulphur. A yellowish gray powder, insoluble in water; recommended as an iodoform substitute, but its use is followed by unpleasant symptoms.

**THIOSALICYLIC ACID.**  $\text{C}_6\text{H}_4(\text{SH})\text{COOH}$ .

This is prepared from amido-benzoic acid,  $(\text{C}_6\text{H}_4(\text{NH}_2)\text{COOH}$ , by the action of nitrous acid and sulphuretted hydrogen. It is employed like salicylic and sulpho-salicylic acids as an antiseptic.

**THIOSAPOL.**  $\text{C}_{18}\text{H}_{34}\text{S}_2\text{O}_2$ .

A sulphuretted soap, prepared by heating unsaturated fats or fat acids such as oleic acid, with sulphur to a temperature of  $120^\circ$  to  $160^\circ$  C. Sulphur enters into combination, the product containing about 16 per cent. Soap containing sulphur in this state of combination is very serviceable in treatment of skin diseases.

THIOSINAMINE.  $\text{CS}(\text{NH}_2)\text{NH}_2\cdot\text{C}_3\text{H}_5$ .

*Synonyms*: Allyl-sulpho-urea; Rhodallin; Allyl-sulpho-carbamide.

On heating a mixture of mustard oil (3p.), alcohol (3p.) and ammonia (6p.) at a temperature of  $50^\circ\text{C}$ ., the pungent odor of the oil disappears, and on cooling crystals of thiosinamine are deposited. This forms colorless crystals of a slight alliaceous odor, melting at  $74^\circ\text{C}$ . ( $165.2^\circ\text{F}$ .), very soluble in alcohol, water and ether.

Employed in treatment of lupus, in form of subcutaneous injections of 15 to 20% alcoholic solution.

THIURET.  $\text{C}_8\text{H}_7\text{N}_3\text{S}_3$ .

A sulphurated compound obtained by the oxidation of phenyl-dithio-biuret ( $\text{C}_8\text{H}_9\text{N}_3\text{S}_2$ ). Forms a light, inodorous, crystalline powder, insoluble in water, quite soluble in alcohol and ether; in contact with alkalis (warmed) it gives up its sulphur. Thiuret, because of its kalyseptic and germicidal properties, is recommended as a substitute for iodoform. Various salts of thiuret have been prepared such as the *phenol-sulphonate*, *hydrochloride*, *hydrobromide*, *salicylate*, etc. These are more soluble in water than the base, and insoluble in ether and the oils. Their aqueous solutions give a violet coloration with ferric chloride and a white precipitate of the base (thiuret) on addition of aqua ammonia.

THYMACETIN.  $\text{CH}_3$   
 $\text{C}_3\text{H}_7 > \text{C}_6\text{H}_2 < \begin{matrix} \text{OC}_2\text{H}_5 \\ \text{NH}(\text{CH}_3\text{CO}) \end{matrix}$ .

By the action of nitric acid, thymol is converted into nitro-thymol, from which a sodium salt is prepared, this on heating with ethyl chloride under pressure yields nitro-thymol-ethyl-ether, which on reduction and aceticification yields thymacetin. This forms a white crystalline powder, melting at  $136^\circ\text{C}$ . ( $276.8^\circ\text{F}$ .), slightly soluble in water and freely in alcohol. Employed in treatment of neuralgia in doses of 0.19 to 0.64 Gm. (3 to 10 grains); it is said to produce unpleasant effects.

## THYMENTHOL.

A proprietary antiseptic.

## THYMOZONE.

A proprietary antiseptic.

## TOLYL-ANTIPYRIN. See Tolpyrin.

TOLPYRIN.  $\text{C}_6\text{H}_4\text{CH}_3\text{N} < \begin{matrix} \text{CO}\cdot\text{CH} \\ \text{NCH}_3\cdot\text{CCH}_3 \end{matrix}$ .

*Synonyms*: Tolylantipyrin; Beta-tolyl-dimethyl-pyrazolon.

Antipyrin is the phenyl ( $\text{C}_6\text{H}_5$ ) derivative of di-methyl-pyrazolon ( $\text{N} < \begin{matrix} \text{COCH} \\ \text{NCH}_3\cdot\text{CCH}_3 \end{matrix}$ ) while tolypyrine is the tolyl ( $\text{C}_6\text{H}_4\text{C}_3\text{H}$ ) derivative of the same, or the latter may be considered as antipyrin in which one hydrogen atom of the phenyl radicle is replaced by a methyl group. This compound forms colorless crystals, melting at  $136^\circ$  to  $137^\circ\text{C}$ . ( $276.8^\circ$  to  $278.6^\circ\text{F}$ .), soluble in 10 parts of water, readily in alcohol and insoluble in ether. Tolpyrin gives the same color reactions with ferric chloride and nitrous acid as antipyrine, and, like the latter, is employed as an antipyretic, antirheumatic and antineuralgic in the same doses, 0.5 to 2 Gm. (8 to 30 grains).

## TOLPYRIN SALICYLATE. See Tolsal.

TOLSAL.  $\text{C}_6\text{H}_4\text{CH}_3\text{N} < \begin{matrix} \text{COCH} \\ \text{NCH}_3\cdot\text{CCH}_3 \end{matrix} \cdot \text{C}_7\text{H}_6\text{O}_2$ .

*Synonym*: Tolpyrin Salicylate.

Obtained by fusing together equimolecular quantities of tolypyrin and salicylic acid and crystallizing from alcohol. Forms colorless crystals, melting at  $101^\circ$  to  $102^\circ\text{C}$ . ( $213.8^\circ$  to  $215.6^\circ\text{F}$ .), almost insoluble in water and readily soluble in alcohol.

Employed in chronic and acute rheumatism and rheumatic neuralgia in doses of 1 to 2 Gm. (15 to 30 grains.).

## TREFUSIA.

A dark red-brown, soluble, granular powder, obtained by drying defibrinated blood. Employed as a natural iron albuminate in chlorosis.

## TRI-BROM-ALDEHYDE HYDRATE. See Bromal Hydrate.

## TRI-BROM-ANILIN HYDROBROMIDE. See Bromamide.

## TRI-BROM-PHENOL. See Bromoi.

**TRI-CHLOR-ACETIC ACID.**  $\text{CCl}_3\text{COOH}$ .

This is obtained by the action of chlorine on glacial acetic acid, or by the oxidation of anhydrous chloral by means of fuming nitric acid.

Trichloroacetic acid occurs in colorless, rhombic crystals, very hygroscopic, of a slightly penetrating odor; melting at  $55^\circ \text{C}$ . ( $131^\circ \text{F}$ .). Very soluble in water and alcohol.

It is employed as a caustic in 10 to 50 per cent. solution.

**TRICHLORPHENOL.** See under Chlorphenol.

**TRICRESOL.** See under Cresol.

**TRICRESOLAMINE.**

A mixture of equal parts of ethylene-diamine and tricresol. Used as an antiseptic.

**TRIFORMAL.** See Formalin.

**TRI-IODO-META-CRESOL.** See Losophan.

**TRI-METHYL-ETHYLENE.** See Pental.

**TRIONAL.**  $\text{C}_2\text{H}_5 \cdot \text{CH}_2 \cdot \text{C} \cdot (\text{SO}_2\text{C}_2\text{H}_5)_2$ .

*Synonym:* Di-ethyl-sulphon-methyl-ethyl-methane.

This is an analogue of sulphonal and differs in the substitution of a methyl by an ethyl group (see Tetronal). The method of preparation is the same as that of sulphonal, only that methyl-ethyl-ketone ( $\text{CH}_3\text{-CO-C}_2\text{H}_5$ ) is employed in place of acetone. Trional forms colorless, shining, tabular crystals, melting at  $76^\circ \text{C}$ . ( $168.8^\circ \text{F}$ .), soluble in 320 parts of cold and freely in hot water, very soluble in alcohol and ether. This compound is a more powerful hypnotic than sulphonal and is less liable to produce ill effects. It is preferred to tetronal as a reliable and safe hypnotic. Dose, 1 to 2 Gm. (15 to 30 grains).

**TROPA-COCAINE HYDROCHLORIDE.**  $\text{C}_8\text{H}_{14}\text{NO} \cdot (\text{C}_8\text{H}_5\text{CO})\text{HCl}$ .

*Synonym:* Benzoyl-pseudotropine hydrochloride.

This alkaloid occurs with cocaine and other bases in the small Java coca leaves; prepared synthetically by Liebermann. Forms white needles, melting at  $271^\circ \text{C}$ . ( $519.8^\circ \text{F}$ .), and is readily soluble in water. Tropacocaine in 2 or 3 per cent. solutions produces more rapid anaesthesia, is less toxic, and more reliable than cocaine (Ferdinando and Chadbourne).

**TUMENOL.**

*Synonym:* Sulphotumenolic Acid.

This compound, which is closely allied to ichthyol, is obtained by treating (sulphonating) the unsaturated hydrocarbons of mineral oils with sulphuric acid, the resulting product is dissolved in water and separated in pure form by the addition of salt. The tumenol-sulphonic acid thus obtained is known as "Commercial Tumenol," being a dark-brown, almost black, acid fluid; this on being neutralized with soda and extracted with ether, yields the "Tumenol-Sulphone" (Tumenol Oil), which is a thick, dark yellow, syrupy fluid, with a bitter taste and insoluble in water. This latter is prepared in the powder form, known as "Tumenol-Sulphonic Acid," being of dark color, inodorous, slightly bitter, and readily soluble in water. Tumenol is employed in treatment of all forms of pruritis and also eczema, either as a 5 to 10 per cent. solution (ether-alcohol, water or glycerin) ointment, paste or dusting-powder. The tumenol oil is frequently painted directly over the diseased surfaces.

**SODIUM TUMENOL-SULPHONATE** is a combination of sulphotumenolic acid and sodium. A dark-colored, dry powder, soluble in water, and applied in all instances above cited.

**TUSSOL.**

*Synonym:* Antipyrine Mandelate or Phenyl-glycolate.

This new salt of antipyrine is recommended as being superior to antipyrine itself in the treatment of whooping cough. Given in doses of 0.05 to 0.1 Gm. (7-10 to 1½ grains) for children under one year of age; 0.1 Gm. (1½ grains) for 1 to 2 years; 0.25 to 0.4 Gm. (3.8 to 6 grains) for 2 to 4 years, and 0.5 Gm. (8 grains) for 5 years and above.

**ULYPTOL.**

*Synonym:* Eulyptol.

This is a name given to a mixture of phenol 1 part, salicylic acid 6 parts, and eucalyptus oil 1 part.

**URALINE.** See Uralium.

**URALIUM.**  $\text{CCl}_3\text{CH:OH.NHCO}_2\text{C}_2\text{H}_5$ .*Synonyms:* Chloral Urethane; Uraline.

To a solution of urethane (q. v.) in melted chloral hydrate, concentrated hydrochloric acid is added: after 24 hours it congeals to a solid mass, which is then washed with sulphuric acid, followed by water, leaving an oil which, on standing, crystallizes. Uralium constitutes a white powder, melting at  $103^\circ\text{C}$ . ( $217.4^\circ\text{F}$ .), insoluble in cold water, very soluble in alcohol and ether; when boiled with water it decomposes into chloral and urethane. Recommended as a hypnotic in doses of 2 to 3 Gm. (30 to 45 grains).

**URETHANE**  $\text{CO} < \begin{matrix} \text{NH}_2 \\ \text{OC}_2\text{H}_5 \end{matrix}$ .*Synonym:* Ethyl-Urethane; Ethyl Carbamate.

This compound, an ethyl ether of carbamic acid ( $\text{CO} < \begin{matrix} \text{NH}_2 \\ \text{OH} \end{matrix}$ ) is obtained by heating a salt of urea with ethyl alcohol under pressure at a temperature of  $120^\circ$  to  $130^\circ\text{C}$ . Forms colorless, odorless prisms or scales, melting at  $50^\circ$  to  $51^\circ\text{C}$ . ( $122^\circ$  to  $123.8^\circ\text{F}$ .) soluble in 1 part of water. 0.6 part of alcohol, 1 part of ether and 1.5 parts of chloroform. Urethane is an excellent hypnotic, being free from by or after effects; dose is 1 to 2 Gm. (15 to 30 grains.)

**UROPHERIN**  $\text{C}_7\text{H}_7\text{N}_4\text{O}_2\text{Li} + \text{C}_6\text{H}_4(\text{OH})\text{COOLi}$ .*Synonyms:* Lithium Diuretin; Theobromine-lithium-lithium-Salicylate.

This double salt is analogous to diuretin, differing only in the substitution of lithium for sodium. It is prepared by rubbing together theobromine with lithium hydroxide and an equivalent quantity of lithium salicylate, with sufficient water, and then dried. It is a white powder soluble in 5 parts of water. Employed as a diuretic in doses of 1 Gm. (15 grains).

**VALERYL-PHENETIDINE.** See under Phenetidine.**VANILLIN.**  $\text{C}_6\text{H}_3\text{OH.OCH}_3.\text{CHO}$ .*Synonym:* Methyl-protocatechuic aldehyde.

This odorous principle, which is found in the vanilla pods, also occurs in small quantities in gum benzoin, asparagus, raw beet sugar and the wood of many plants. Synthetically prepared from coniferin, a glucoside, and also from eugenol. Vanillin occurs in acicular crystals, melting at  $80^\circ$  to  $81^\circ\text{C}$  ( $176$  to  $177.8^\circ\text{F}$ .), soluble in alcohol, glycerin, ether and chloroform, only slightly soluble in water. It possesses the odor and taste of vanillin. Employed chiefly as an odoriferous and flavoring agent.

**VIERIN.**

An amorphous, white, bitter principle, of aromatic odor, obtained from the bark of *Remizia velozii*. It melts at  $120^\circ\text{C}$ . ( $248^\circ\text{F}$ .), and is readily soluble in alcohol and chloroform. Employed as a quinine substitute in doses of 0.1 to 0.2 Gm. ( $1\frac{1}{2}$  to 3 grains).

**VUTRIN.**

A concentrated meat extract in powder form, one part of which represents the nutritive value of four parts of beef.

**XYLENOL-SALOLS.**  $\text{C}_6\text{H}_4(\text{OH})\text{COO C}_6\text{H}_3(\text{CH}_3)_2$ .

By the action of dehydrating agents upon a mixture of equal molecules of salicylic acid and xlenol (o-m- or p.), ortho, meta or para-xlenol salicylates are formed. These are insoluble in water and soluble in alcohol; employed like salol as intestinal disinfectants.

**ZINC COMPOUNDS.**

**BORATE.**  $\text{ZnB}_4\text{O}_7 + 7\text{H}_2\text{O}$ . Prepared by interaction between hot solutions of 5 parts of zinc sulphate in 50 parts of water and 4 parts of borax in 100 parts of water. An amorphous, white powder, which is employed as an antiseptic dusting powder for wounds.

**CHRY SOPHANATE.** Forms a brownish-red powder, which is readily soluble in water which has been rendered slightly alkaline. Recommended as antiseptic dusting powder

**GYNOCARDATE.** A yellow granular powder, insoluble in water and dilute acids, readily soluble in alcohol and ether. Recommended in treatment of psoriasis, prurigo and other skin diseases.

**PERMANGANATE.** Occurs in crystals closely resembling those of the potassium salt; hygroscopic and soluble in water. This salt is employed in all instances where zinc sulphate is indicated; its solutions being of the strength 0.05 Gm. to 200 Cc. of water (7-10 grain to 6.8 fld. ozs). Care should be taken not to triturate this salt with organic substances or dispense it in solutions containing alcohol or organic extracts (See Coblenz's Handbook of Pharmacy, pp. 392-396).

**SALICYLATE.**  $(C_7H_5O_3)_2Zn + H_2O$ . Sodium salicylate 34 parts and zinc sulphate 29 parts are boiled for a short time with 125 parts of water; on cooling a solid crystalline mass separates, which, after washing with a little cold water, is recrystallized. Forms colorless crystals which are soluble in 25.2 parts of cold and readily in boiling water, soluble in 36 parts of ether and 3.5 parts of alcohol. Recommended as antiseptic dusting powder and wash in various skin diseases.

**SOZOIODOL.**  $(C_6H_2I_2(OH)SO_3)_2Zn + 6H_2O$ . See under Sozoiodol.

**SULPHOCARBOLATE.**  $C_6H_4(OH)SO_3)_2Zn + 8H_2O$ . By the action of concentrated sulphuric acid on phenol at  $90^\circ C.$ , para-phenol-sulphonic acid is formed; this is neutralized with barium carbonate, and the resulting barium sulphocarbolate on being brought into reaction with an equivalent amount of zinc sulphate in solution yields zinc sulphocarbolate and the insoluble barium sulphate. The filtrate is evaporated and crystallized. This salt forms colorless, rhombic prisms or scales, soluble in water and alcohol. Employed as an antiseptic wash in all instances where zinc sulphate or carbolic acid is indicated.

**SULPHYDRATE.**  $Zn(SH)_2$ . A white precipitate, which should be kept under water, since it readily decomposes on becoming dry. Recommended by Barduzzi externally and internally in the treatment of chronic eczema, psoriasis and vegeto-parasitic dermatoses. Internally the dose is 0.03 to 0.13 Gm. ( $\frac{1}{2}$  to 2 grains), externally in ointment form (10%) combined with lanolin and lard (2:3).



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